AMATEUR RADIO

FEBRUARY 1948

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

FOR THE EXPERIMENTER & RADIO ENTHUSIAST

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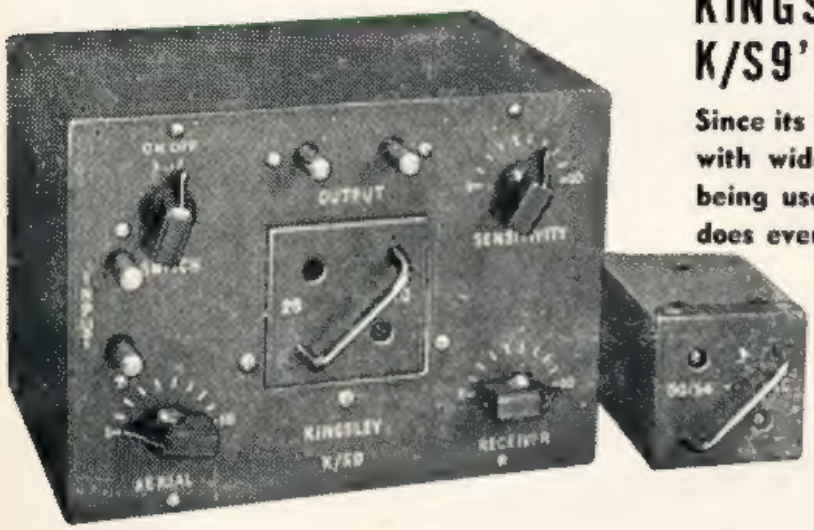

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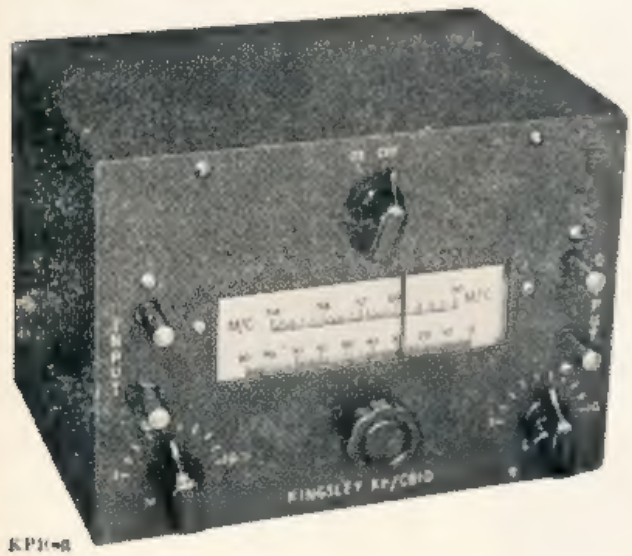

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FEBRUARY : : 1948
Vol. 16 No. 2

AMATEUR RADIO

Published by The Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.1

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Printers:
H. HEARNE & CO. PTY. LTD.,
285 Latrobe Street, Melbourne.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Box 2611W, G.P.O., Melbourne, on or before the 15th of each month.

Subscription rate is 6/- per annum, in advance (post. paid).

— IN THIS ISSUE —

EDITORIAL

★

"The danger to our civilization lies in the disparity between Man's wisdom and his power."—Joad.

With the present trend towards development of new equipment and techniques, we are sometimes apt to forget the advances that can be made in making our equipment safe against shocks and electrocution. In our enthusiasm and knowledge we can easily overlook the danger of our potential lethal machines.

Now is the time for all to become safety conscious and really do something about that "haywire." Many of us have young children, inherently curious, who must be protected against such dangers. Don't imagine that YOU or YOU are immune—we can all make ONE mistake. Even the late Ross Hull, who energetically conducted a safety campaign through QST and the A.R.R.L. for some years, made only one.

First you will want that isolating switch which cuts off power to every piece of equipment in your shack, preferably located near the door and out of the reach of children. Desirable also is another switch in series (and in a concealed position) at the operating position. A separate switch for each power supply in the primary circuit is another essential for isolating equipments from each other. Pilot lights are good indicators—use green for filaments, red for h.t.

Be liberal with the use of relays for switching and especially for keying. If you must make adjustments to the rig with the power on, do so with one hand in your pocket—you at least won't receive such a serious shock. Remember always when behind the rig that while you may be careful to watch what you do, you never know when a fainting turn might occur—all your care is then worthless should you bridge the h.t. Remember also that good filter condensers hold their charge for some time—you can get a nasty shock from this source even with all your switches off. Make sure you have all your chassis connected to a good earth—it's cheaper to replace fuses than blow your own.

Learn resuscitation and see that members of your family know what to do if needed. Acquaint them with the right switches to throw—you wouldn't want them electrocuted too.

While we have made no attempt to cover this important subject other than in general terms, we commend to all the excellent articles written in QST* and other publications. Study them well and do something about it NOW. Write an article on it for the guidance of your fellow amateurs—make them safety conscious too. There are always some who won't take heed, but don't let that B.F. be you. Make your gear safe NOW.

W.T.S.M.

* QST for Feb., Mar., April, 1939.

PHASE MODULATED NARROW BAND F.M. EXCITER

By R. W. SANDON*, VK3ABS

F.M. enables an increased output efficiency to be obtained so that for a given radiated power, the d.c. input power is considerably reduced. In the case of a.m., an output power amplifier must be capable of dealing with a peak signal of amplitude twice that of the unmodulated carrier, but the average depth of modulation being approximately 25% for speech, the stage is normally being under run. An f.m. signal has constant amplitude and hence the output power amplifier can be fully loaded and will, therefore, be more efficient. For the same d.c. input to the output power amplifier, the radiated power is twice as great on f.m. as on a.m.

The exciter to be described uses the oscillator crystal frequency necessary to place a signal in the centre of the 27.185 to 27.455 Mc. f.m. band, namely 27.320 Mc. Any method to suit the experimenter can be used to provide the oscillator frequency providing the output will eventually end up in the f.m. band.

THEORY

The amount of f.m. produced by phase modulation depends upon the amount of phase shift and the **rate of change of phase.** A shift in the phase of the r.f. carrier will cause the effective frequency to change as long as the phase is changing. As soon as the phase stops changing the frequency returns to its original value. The faster the phase is changed the greater is the frequency shift. When the phase is changed at an audio rate, the change is obviously most rapid at the high audio frequencies, and, for a given amount of phase shift, the amount of frequency modulation increases directly with the modulation frequency.

To make the frequency modulation independent of the audio frequency and proportional only to the amplitude of the modulating signal, a simple r.c. filter is inserted in series with the audio input to the phase modulator. This filter causes the amount of phase modulation to decrease linearly as the modulation frequency increases, thus giving a true frequency modulated signal. Phase modulation is obtained by amplitude modulating a constant frequency carrier, separating the a.m. side bands from the carrier, shifting the phase of either the carrier or the side bands by 90°, and recombining the side bands with the unmodulated carrier. All of this can take place at very low power levels, where receiving tubes and components can be used. A block diagram of the basic arrangement is shown in Fig. 1.

*336 Dandenong Rd., East St. Kilda, Vic.

The phase shifting network is shown in the excitation lead to the mixer stage, but it might just as well be in the input or output lead of the balanced modulator stage, the only requirements being that there should be a 90° phase shift between the side bands and the carrier. The balanced modulator stage shown in Fig. 1 may consist simply of two tubes with their grids in push pull and plates in parallel, with audio fed into another pair of grids in push pull. When there is no audio signal applied to the modulator, the push-pull grid excitation is cancelled out in the parallel plate circuit, and the modulator does not give any output. However, when an audio signal is applied to the modulator, the stage is thrown out of balance at an audio rate, and the side bands, minus carrier, are produced across the plate tank circuit. When these side bands are combined with phase shifted carrier, a phase modulated signal is produced.

The principal disadvantage of phase modulation is that only a small amount of frequency modulation can be produced before the distortion becomes objectionable. The lowest modulation frequency is the limiting factor in the amount of phase modulation which can be used because the previously mentioned r.c. network reduces the phase modulation as the frequency is increased, thus causing the modulation to be greatest at the lowest frequency. For

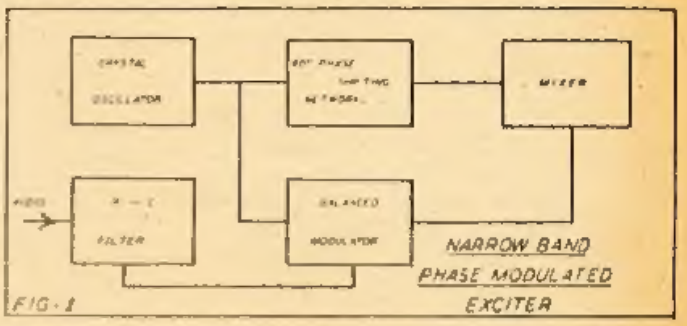


FIG. 1

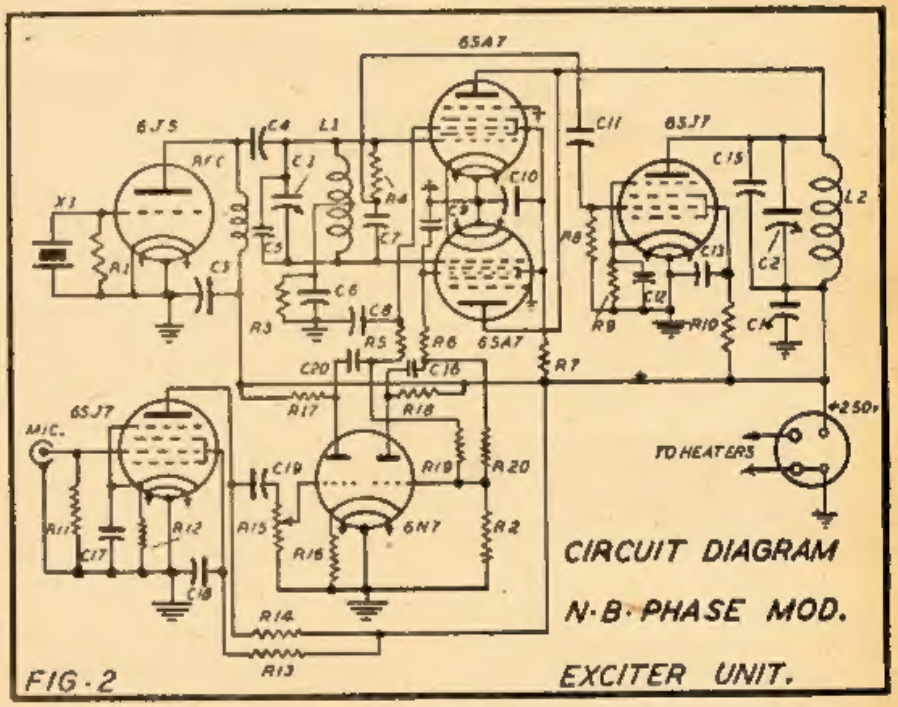


FIG. 2

R1, R2, R8, R17, R18—100,000 ohms ½ watt resistors.
R3—10,000 ohms ½ watt resistor.
R4—5,000 ohms ½ watt resistor.
R5, R6—3,000 ohms ½ watt resistor.
R7—10,000 ohms 5 watts resistor.
R9—300 ohms ½ watt resistor.
R10—50,000 ohms ½ watt resistor.
R11—2 Meg. ½ watt resistor.
R12—500 ohms ½ watt resistor.
R13—1 Meg. ½ watt resistor.
R14, R19, R20—0.25 Meg. ½ watt resistors
R15—0.5 Meg. Potentiometer.
R16—2,000 ohms ½ watt resistor.

C1, C2—75 mmfd. variable condenser.
C3, C4, C12, C13, C14, C19—0.01 mfd. 600 v. condenser.
C5, C15—0.0001 mfd. mica condenser.
C6, C16, C20—0.05 mfd. 600 v. condenser.
C7—3-30 mmfd. trimmer condenser.
C8, C9, C10, C18—0.1 mfd. 600 v. cond.
C11—0.003 mfd. mica condenser.
C17—25 mfd. 25 v. electrolytic condenser
R.F.C.—2.5 mhy. choke.
X1—1707.5 Kc. crystal.
Mic.—Microphone connector.
L1, L2—Approx. 40 turns, 24 gauge enamel, close wound on 1" former. L1 is centre tapped.

Amateur or other voice communication work, this disadvantage of the phase modulation method becomes less important. For one thing the male voice does not often produce maximum intensity peaks below 400 cycles, so that we can take 400 cycles as the lowest frequency at which full modulation will occur. Secondly, the maximum permissable deviation may be one half of the lowest frequency at which maximum modulation occurs, thus giving a maximum deviation of 200 cycles.

These three stages produce an f.m. signal having a maximum deviation of 200 cycles. The signal frequency is 1707.5 Kc. Frequency multiplication of this signal to reach the 27.185-27.455 Mc. band would give an increase in deviation of 16 times, making the maximum deviation of 3.2 Kc. at 27.320 Mc. A deviation of 3.2 Kc. on the 27.185-27.455 Mc. band is enough for narrow band work.

THE CIRCUIT

Fig. 2 shows the circuit of the phase modulated exciter. A 6J5 is used as the 1707.5 Kc. crystal oscillator which uses a balanced plate tank circuit. The output from this tank circuit is fed directly to the two number 1 grids of the 6SA7s, which act as the balanced modulator. Another output connection from the oscillator stage is taken from the junction of R4 and C7 which together form the phase-shifting network. When the reactance of C7 is equal to the resistance of R4, the output between the junction and ground is 90° out of phase with the energy at the ends of L1.

The phase shifted output is fed through C11 to the grid of the 6SJ7 mixer stage. The mixer plate tank circuit also acts as the plate circuit for the balanced modulator, and here the side bands are combined with the phase shifted carrier to form a phase-modulated signal. The audio section of the exciter consists simply of a 6SJ7 resistance coupled to a 6N7 self balancing phase inverter. Output from the 6N7 plate is fed through the r.c. networks formed by R5-C8 and R6-C9 to the number 3 grids of the two 6SA7s. The gain of the audio section is ample for any ordinary crystal or high impedance dynamic microphone.

TUNING UP

Before tuning the exciter up remove the 6SA7s from their sockets since these tubes receive their bias from the grid current through R3 and loss of excitation during the initial tuning is likely to lead to damage of the tubes.

After the preliminary tuning the 6SA7s may be replaced in their sockets and C1 and C2 returned to compensate for the capacity added by the tubes' grids and plates. C7 should be set about half way. Speaking into a microphone while listening on a receiver tuned to 1707.5 Kc. should reveal that a frequency modulated signal is being produced.

The power pack for the exciter should be capable of delivering 250 to 300 volts at 80 to 100 mills and 6.3 volts at 3 amp.

Transmitting Design and Construction

By J. N. WALKER*, G5JU

(Published by Special Arrangement with the R.S.G.B.)

The wide range of amateur requirements makes the subject of transmitter design a none-too-easy one to discuss. Further, any transmitting installation of necessity contains many ancillary items such as v.f. oscillators, modulators, power supplies, aerial matching units and so on. This article is confined to the actual generation of r.f. energy for the input permitted or possible, having regard to efficiency, reliability, economy and other factors.

It is not proposed to put forward any hard and fast designs of particular transmitters, since so much will depend on factors such as frequency, power, constructional ability and facilities, room available and experimental inclinations.

In pre-war days 60 Mc. was considered a band calling for somewhat special technique. This is only partly so to-day and the points which follow apply to all the normal Amateur Bands, including 60 Mc. Special v.h.f. technique is not considered since this can well form a subject of its own.

The information is intended in the main for those lacking experience in transmitter design. At the same time, there are many who, whilst capable of building a good piece of equipment, may not altogether be clear regarding the reasons governing the choice of components values, and these will doubtless pick up useful hints.

An Amateur is known by the quality of his signals (and by his operating procedure) and if this article assists others to effect improvements or avoid trouble, its object will have been achieved.

The article is divided up into a number of major headings, any one of which almost forms a subject on its own. Yet, if any are left out or are passed over too briefly, the balance as a whole will be destroyed. Inevitably, some matters must be dealt with briefly.

IMPORTANCE OF IMPEDANCE

An actual transmitter consists of:—

(1) A primary frequency source which may be either crystal or v.f.o.
(2) One or more frequency multipliers —it is not wise to work straight through in the fundamental frequency, unless the power output is comparatively low.
(3) Possibly a buffer stage—generally required only for high power working.
(4) The Power Amplifier stage.
(5) Aerial Coupling.—Not considered here.

All these stages have things in common—drive, bias, by-passing, decoupling, etc. Variations occur in the applied voltages, power outputs, ceupling methods and anode and grid L/C ratios. Also as in practically all other radio apparatus, the component parts all possess one common characteristic—impedance. In places, a high impedance is essential—in others, the impedance must be reduced to the lowest possible practicable figure. Good transmitter design largely boils down to paying proper attention to the various impedances—matching them together where necessary, and adjusting them to suit the particular requirements called for in different circuits, in different parts of any circuit and when using different types of valves.

By so doing and by correct choice of valves to suit the power requirements, both efficiency and economy of operations are assured.

BY-PASSING

Generally speaking, high impedance is obviously necessary across tuned circuits and at valve grids and anodes. At other points however, such as the screen grid and cathode valve electrodes and at the "earthy" end of tuned circuits, the impedance with respect to ground—which is usually the chassis—must be low.

R.F. currents exist at all these points and, in the later stages of a transmitter, they can be of considerable magnitude, particularly at the higher frequencies. Current flowing through an impedance produces voltage and this voltage, existing at what should really be "earthy" points, as regards r.f., will lead to instability, lack of gain and erratic performance.

The by-pass condensers used must therefore be of (a) the correct size, (b) the highest possible quality. It is a **sine qua non** that either mica or ceramic condensers should be used—the former will in general prove fairly satisfactory, provided they are not years old and therefore of doubtful quality. For really low loss and low impedance, the ceramic types, such as those manufactured by U.I.C., e.g. the transmitting pot type for high power final amplifiers, the tubular type LPC for lower powers, and the disc type HVD for coupling purposes, are recommended.

What governs the actual capacity used at any particular by-pass position? The reactance of a condenser at any given frequency decreases as the capacity increases and, if other factors were ignored, it should be correct to use 8 mfd. condensers everywhere (voltage permitting). However, that, as Euclid would say, is absurd!

Two major factors enter here, in addition to actual capacity, one is the power factor and the other the inherent inductance possessed by condensers. Power factor is the measure of loss, and

* Engineer, Technical Services Dpt., Stratton & Co. Ltd., Birmingham, Eng.

such loss increases rapidly with frequency. Electrolytic and paper condensers should therefore not be used in radio frequency circuits.

The wire leads fitted to some condensers and generally necessary with others, possess inductance and the thinner the wire the greater the inductance. Some of the impedance developed by this inductance is cancelled out by the capacitive reactance of the condenser but nevertheless, it must be reduced to the smallest possible proportions. This can be accomplished by (a) reducing the length to the absolute minimum; (b) using copper tape or braid instead of comparatively thin wire.

The inductance of an average small mica condenser is usually about 0.04 microhenry. The impedance of this inductance at 7 Mc. is about 2 ohms and at 30 Mc. about 7.5 ohms. The aim therefore is to use a condenser, the capacity of which is such as to cancel out the inductive impedance. As the frequency rises, the optimum capacity becomes less. At 30 Mc., for instance, a 400 pF. condenser has a reactance of about 7 ohms and this is the most suitable capacity.

To take an extreme example to illustrate this point further, assume that in some part of a 60 Mc. transmitter, long leads are necessary to connect a by-pass condenser in circuit and that these leads show an inductance of 1.25 uH. The inductive reactance will be 500 ohms.

Say the condenser is one of 300 pF., which will have a reactance of 10 ohms. Obviously, the much greater inductive reactance will take complete charge and considerable r.f. voltage will be developed across it. If, however, a 5 pF. condenser was fitted in lieu, with a reactance of 500 ohms, complete cancellation would occur and the by-pass would show zero impedance. The circuit is then series tuned to resonate at the working frequency and this practice is desirable and often practicable in transmitters working on the higher frequencies. It becomes essential in the v.h.f. regions.

Of course, in a transmitter used on several bands, a compromise has to be struck but rarely will any benefit accrue from fitting condensers bigger than 0.002 uF.

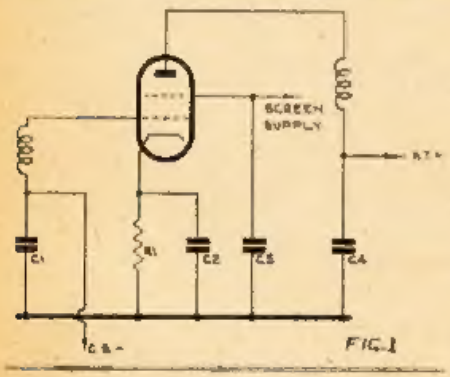
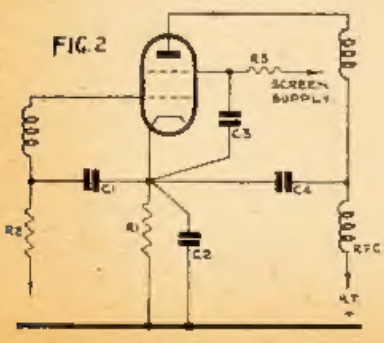


FIG. 1



DECOUPLING

It is necessary to provide not only a low impedance by-pass for r.f. currents but also a relatively high impedance path, so that the currents do not divide between the two branches. The second branch, which can be a grid bias or high tension lead, is obviously bound to possess considerable inductive impedance and quite small currents will set up r.f. voltages which are then radiated to other parts of the equipment and there amplified, to give rise to all sorts of trouble.

Looking at it the other way also, the long connecting leads are liable to pick up energy off the aerial and, if high impedances are not inserted, this energy will be fed into the early stages.

Proper decoupling is illustrated in Fig. 2. It will be seen that a resistor is included in the grid and screen leads, where the current flowing is small, and an r.f. choke in the anode lead, where it is undesirable to have a serious voltage drop. The value of the resistors should be at least ten times greater than the impedance of the condensers but, even so, the values can still be quite small—200 to 500 ohms.

CORRECT WIRING

Bound up with by-passing and decoupling is the necessity to wire up any one stage so that circulating currents are prevented. Fig. 1 shows how wiring should **not** be done. The by-pass condensers C1, C2, C3 and C4 are returned to any convenient point on the chassis, with the result that circulating currents are set up in the latter and, according to the phases, positive or negative feedback effects will occur—generally the latter. Both, when uncontrolled, are undesirable and will tend to cause instability or lack of gain.

The cathode (normally) is the actual point of zero r.f. potential and, in Fig. 2, C1, C3 and C4 are all returned direct to the cathode, with C2 acting as the by-pass to chassis. In some valves—the QVO4/7 for instance—a further improvement results from using the several cathode or internal screen pins individually for each condenser.

COUPLING METHODS

Correct coupling between any one stage and the next really means matching up the input and output impedances, so that maximum power is transferred.

Capacitive coupling is commonly employed and, because modern valves generally require only low values of drive, it is often satisfactory. In the usual circuit, Fig. 3, C1 is the coupling condenser, C2 the stray capacities (including the valve), R1 the grid leak and R2 the input impedance of the valve. The impedance of R1, R2 and C2 repre-

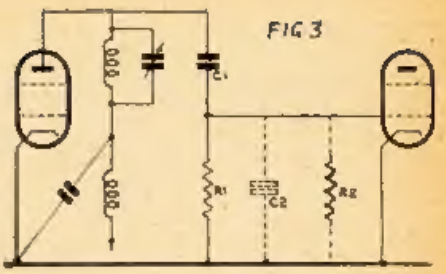


FIG. 3

sents an impedance which, at low frequencies, is chiefly governed by C2 and at higher frequencies, by R2. In any case, this impedance and that of C1, form a potential divider across the source of r.f. energy, and the voltage applied to the grid will depend on the size of C1. At low frequencies, C1 can be quite small and adequate power still transferred to the grid of the driven valve. At high frequencies however, C2 must be increased, since the impedance of C2, etc., is dropping. The result, in the majority of cases, is that the tuned circuit is too heavily loaded and the efficiency and output of the driver valve both fall away. To minimise this effect, the L/C ratio of the tuned circuit should be comparatively low—the capacity of the tuning condenser should be at least 1 pF. per metre.

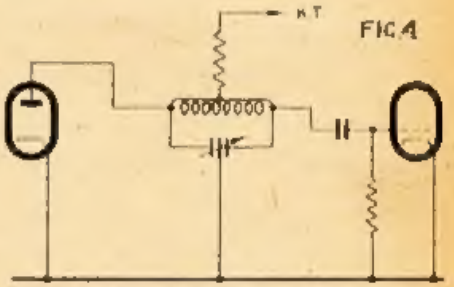
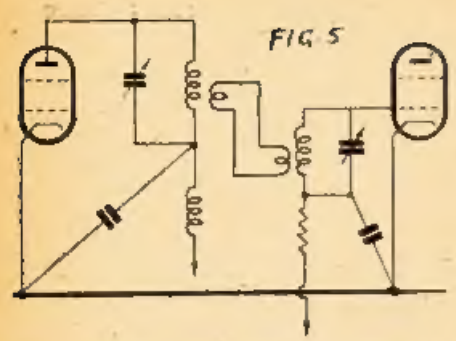


FIG. 4

This state of affairs can be improved quite considerably by changing over to the balanced circuit shown in Fig. 4. The stray capacities associated with each valve are now in series—and therefore effectively a quarter of their previous total value—and at the same time, the effect of the valve input and output impedances are also similarly reduced. Two facts follow—it is technically permissible to increase the L/C ratio of the tuned circuit and it is also practicable to do so, because of the reduction of stray capacities. A split stator condenser is required and the size of coil should be increased by 50% or more. The centre tap of the coil must be decoupled by an r.f. choke or a resistor—which can be between 250 and 500 ohms, dependent on the voltage drop permissible.

Link coupling, as shown in Fig. 5, is probably the most efficient method of impedance matching, since the L/C ratio (of which more later) of the two tuned circuits can be arranged independently to suit each valve. Link coupling is equivalent to direct inductive coupling but usually permits better screening and lay-out of the different stages. It also enables the circulating currents associated with each valve to be kept to



their proper paths. It is difficult to achieve proper balance when using capacitative coupling between a single ended stage and a push-pull one and link coupling should always be used.

Experiment is necessary with the number of coupling turns but a good average is to use one tenth the number in the main winding. The link itself can be made of 18 s.w.g. wire enclosed in polythene tubing, laid flat and bound together with suitable adhesive. Poor insulation, such as P.V.C. tubing, should not be brought into the fields of the coils. For long links, the usual low impedance co-axial feeder is very suitable.

STABILITY

By stability is meant controlled operation throughout the transmitter so that a good, clean signal, be it c.w. or telephony, results.

In the first place, construction should be good—properly soldered joints, components of good quality, adequate and properly thought out by-passing and decoupling, etc. **All** wires leaving the chassis should have small by-pass condensers fitted and it is also important to fit by-pass condensers across each heater or filament to ensure that both ends are at equal r.f. potential. Lack of these is a common cause of modulation hum.

The power supply should be properly designed and be well regulated. Steps should be taken—by the insertion of by-pass condensers and filter chokes—if necessary, to prevent r.f. feedback into the mains wiring and to prevent trouble from r.f. picked up by the mains wiring—the latter can be quite appreciable if the mains wiring is in the field of a large aerial system.

The emission of the valves in each stage is an important point. The oscillator must come into operation instantaneously and each valve must be capable of passing the full peak current expected, in contrast to the average value shown on any meter in circuit.

PARASITICS

The next thing is to ensure that parasitic oscillations are not being generated in any stage of the transmitter. If they develop in an early stage, amplification is almost sure to occur in the later stages whilst, if they occur in the power amplifier, considerable power will be wasted in addition to the spoilation of the emitted signal.

Modern valves are usually of high mutual conductance and very slight feedback is liable to lead to oscillation and instability. It should not be forgotten, also, that in a tetrode valve high mutual conductance exists between the control and screen grids. Too often, the screen grid is ignored as a factor in the production of parasitics.

Self-oscillation may take place (a) on or near the fundamental frequency; (b) at a very high frequency; (c) at a low radio frequency, or (d) in several modes simultaneously. With the high value of bias applied, the mutual conductance will, of course, be low. To test therefore, it is necessary to remove the drive, adjust the bias so that a suitable standing anode current flows (within the rated dissipation) and fit meters in the grid and anode circuits (if not already there).

Listening on the receiver will show if self-oscillation at the fundamental frequency is taking place—a somewhat rough, unstable but single note will be audible.

Rotating the tuning condensers will affect the frequency in normal fashion, and average values of grid and anode current will flow. A neon lamp will show the usual brightish red glow.

The cures are obvious—attention to neutralisation if a triode, additional screening and more effective decoupling. Ensure that all metal parts are properly earthed, so that they do not cause indirect coupling. This applies particularly to such items as unused valve pins and metal bases on valves. Radiation off the aerial (if of the end-on type) or off open wire feeders may be reaching the input circuit, if the trouble occurs in the power amplifier. Substitution of an artificial load will indicate if this is the case. Care should always be used to run the feeders directly away from the final tank circuit and it is worth mentioning that the use of low impedance cable, either to feed the aerial or its matching network, will often effect a cure. Occasionally it will be found impossible to cure self-oscillation when no load is connected but that it disappears with a load.

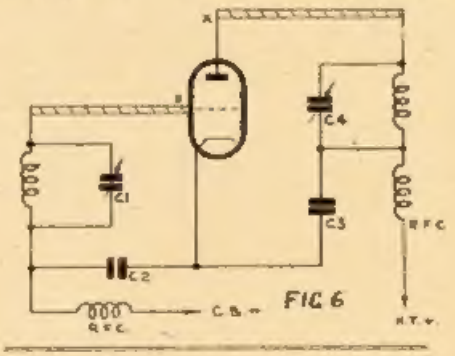


FIG 6

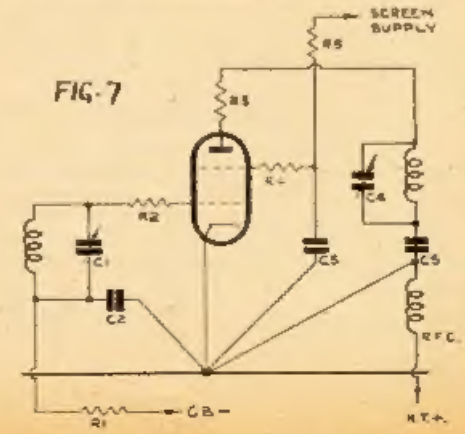


FIG 7

The reason for v.h.f. parasitic oscillation is shown in Fig. 6. Here the anode and grid wires are emphasised to indicate that they may act as a linear tank circuit (with a tetrode, the screen grid lead will act similarly), resonant at a very high frequency, oscillation taking place because of feedback through the interelectrode capacities. Both anode and grid current will be high, the valve will heat up considerably and a neon lamp held at the points marked "X" will glow purple but will not glow (purple) at the other end of the line. The effect will be greater with the tuning condensers at maximum since they then act as by-pass condensers to the v.h. frequencies. At minimum, the impedance offered may be sufficient to prevent v.h.f. oscillation.

The cure is to make the anode and grid leads considerably different in length or to insert stopper resistors (see Fig. 7).

Low frequency parasitics are almost always due to the presence of r.f. chokes in both anode and grid (possibly and screen) circuits, and these, with the by-pass condensers, resonate at a frequency much lower than the fundamental. The anode and grid meters will tend to show low current readings and a neon lamp will glow dull red at any part of the anode circuit—which includes the "earthy" end. The variable condensers will have practically no effect.

The cure is to cut out one choke completely—preferably the grid one—and substitute a resistor in its place. Otherwise, alterations of the by-pass condenser values may also effect a cure.

Fig. 7 shows a circuit which includes precautions against parasitic oscillation taking place. The grid and anode resistors should be as low a value as possible and of the carbon—not wirewound—type. Usually 6 to 10 ohms for R2 and 12 to 22 ohms for R3 will suffice. The screen resistor R4 should come before the by-pass condenser and 47 ohms is satisfactory, although on occasions as much as 100 ohms may be required. An r.f. choke is used in the anode circuit and resistors (R1 and R5) in the others, for decoupling purposes.

GRID DRIVE REQUIREMENTS

The various modes of valve operation—Class A, B, and C—are not applicable to the present article. Suffice to say that Class A is rarely used—it is useful for a buffer amplifier in a v.f.o.—and Class B is only used where driving power is lacking (Class B gives maximum power gain). Class C is the usual mode, with grid bias adjusted to two or more times cut-off.

The actual amount of power which must be **delivered** by the driver stage will depend on several factors, including the type and size of driven valve, the circuit losses, frequency and bias system. Generally it is wise to budget for two or three times the amount of driv-

ing power specified by the manufacturer for any given valve.

The method of coupling, dealt with earlier, also comes into the picture and it is presumed this has been designed to give proper matching.

The circuit losses will naturally be kept small, by the use of efficient condensers, coils and insulating materials. Valve losses, due to lower input impedance caused by transit time effects, and higher circulating currents, will increase considerably with frequency and more power must be applied if the same amount of effective drive is to be realised.

Quite distinct from the input impedance, which exists under any class of operation, a further impedance is placed across the input circuit by the flow of grid current between the grid and cathode of the valve, under Class C conditions. To ensure good regulation of the driving power, this impedance must be taken into account when choosing the L/C ratio of the grid circuit. High grid current with low grid bias volt represents a low impedance. More capacity is then required in the tuned circuit and **vice versa.**

Grid current flows usually only during a portion of the positive half of the cycle and it should be remembered that the grid current meter indicates average current—the peak value can be quite high.

The current should be the same irrespective of how the bias is derived—the peak amplitude and actual time of flow, or angular duration—are variable and the average current a constant. The valve manufacturer generally gives two figures for grid current—one the maximum and the other for typical operation. It should rarely be necessary to exceed the latter and never the former, or the rated grid dissipation will be exceeded.

One point should be made clear—the recommended values are for normal operation with the anode circuit properly loaded. With no h.t. on the anode, or the anode current below normal, the grid current will automatically increase. So also will the grid dissipation. The higher the anode volts, the less generally should be the grid current.

The greater the grid bias, the greater the overall driving power required, since both the r.f. voltage and the peak grid current will increase. At the same time however, the impedance reflected by the grid/cathode path will be greater and it will be possible to use a higher L/C ratio, with some probable increase in efficiency.

Care must be exercised not to overdrive any stage. The effects of overdriving are to increase grid dissipation, produce excessive harmonic output and, in a tetrode, drive up the screen current to harmful values. A frequency multiplier stage is, of course, purposely provided with high drive, since it is the intention to produce high harmonic output but the anode current must be properly loaded and steps taken to prevent excessive screen current by feeding the screen from a potential dividing network, or separate supply of correct voltage.

It is particularly important to match the power input to a driver stage to meet the requirements of the driven stage. Presuming efficient coupling, it is obviously absurd to use a stage producing 10 watts or so of r.f. power to drive another requiring 2 watts—yet how often one sees this happening. In such a case, to avoid over-driving it becomes necessary to use loose coupling and the driver valve anode circuit is not properly loaded. If, as is usually the case, the valve is a tetrode, excessive screen current is likely. It is better to reduce the anode and screen voltages and increase the anode current to a reasonable value.

Some means of varying the screen voltage is an excellent method of controlling the drive throughout the transmitter since, in any tetrode valve, the anode current is dependent very largely on the screen voltage.

When using telephony, the drive and also the bias must be adjusted so that they are correct for the valve operating at modulation peaks. The peak input is four times the average input and obviously a valve (or valves) must be chosen capable of withstanding the increased dissipation and peak voltages which occur during modulation. Which explains why the maximum rating given for c.w. must not be used for telephony—drive, bias and peak anode voltages will be excessive.

BIAS SYSTEMS

Three main methods exist of providing bias for a valve:—

(a) Volts dropped across a cathode resistance.

(b) Volts dropped across a grid resistance.
(c) External source of d.c.

Cathode bias is useful when the voltage required is small and it also protects the valve, to some extent, if the drive fails and only grid leak bias is provided. However, it is difficult to obtain sufficient bias for Class C operation and the voltage developed is derived from the h.t. supply, the effective value of which is therefore reduced. Sometimes, of course, this is a useful feature.

Meter indications are difficult to assess when employing cathode bias. As the anode current increases (for any reason), so also does the bias, tending to limit the anode current. Conversely, a reduction of anode current, as when tuning for minimum dip, reduces the bias and tends to increase the anode current. It is therefore advisable only in early stages or in conjunction with another source of bias.

The current through a grid resistance (R1, R2 in Fig. 8) is derived from the rectifying action of the grid/cathode portion of the valve, across which appears the r.f. voltage. The whole action is identical to that which occurs in any ordinary power pack, delivering d.c. from an a.c. transformer, and using a half-wave rectifier. As is normal, the cathode is positive and the other side of the load resistance (R1, R2) is negative. It will be seen therefore that the bias is derived from the r.f. energy and in effect, one goes to considerable trouble to produce this energy only to throw it away again. It is obviously more economical to provide a separate source of bias. In Fig. 8 this is fed in series with the circuit, R2 now becoming the load resistor of the bias supply and R1 a decoupling resistor. Both should be of relatively low values, to prevent undue grid current volt to drop across them —the actual values will depend on the amount of grid current flowing.

If a grid resistor is used alone, the valve is liable to suffer when the drive—which is also the source of bias—is removed. It should therefore be used in conjunction with cathode bias.

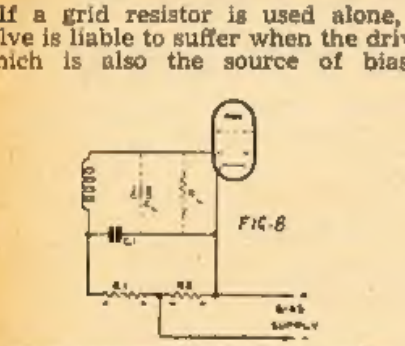


FIG-8

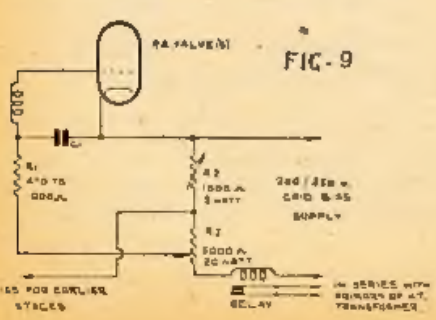


FIG-9

The value of grid resistance is seldom critical, as it has the effect, to some extent, of automatically adjusting the bias. It should be low where the grid current is high and vice versa—the actual value is worked out from Ohm's Law, according to the grid current and to the bias required. The latter will be higher for frequency multipliers and so also will be the resistance.

With an external supply, the bias volts are not dependent on the amount of drive or on the anode current. The h.t. voltage remains at maximum, the valves are safeguarded, and all the r.f. energy is available for its proper job.

A battery is sometimes a convenient method of obtaining fixed bias and is satisfactory provided two points are watched. The first is that the grid current in practice charges up the battery and the voltage may rise to values well in excess of the nominal value. The other is that as the battery ages, its resistance will increase and so allow further bias to develop. Unquestionably, where facilities permit, a separate mains operated power unit is desirable. The design can be quite simple—moderate voltage—metal rectifier—high current. The latter is desirable to swamp out the effect of grid current, particularly when triodes are used.

A circuit for use with a mains bias unit is given in Fig. 9. R2 may be either a fixed or variable resistor. It serves two purposes—to ensure that the bias on the p.a. stage is never actually zero, and as a means of deriving a moderate degree of fixed bias for earlier stages. The value and wattage of R3 will depend on the valves used, those shown being typical. R1 is purely a decoupling resistor and 470 ohms will usually be sufficient.

A safety precaution is also indicated in Fig. 9. A relay is inserted in series with the grid bias supply to the resistor network and normally holds closed with over 30 M.a. flowing. If, for any reason, the current falls off, the contacts, which are in series with the primary of the h.v. transformer, open and prevent the possibility of damage occurring to the valve.

L/C RATIO AND Q

In a receiver, it is generally the aim to secure the highest possible Q value in the tuned circuits. Yet, in transmitters a Q of generally 12 or 15 is called for. Why the difference?

In the first place, in a receiver it is voltage which is wanted—in a transmitter, useful power. A transmitter tank circuit, built with high quality components, possesses a very high inherent Q—often 400 or more. To draw away r.f. power, a resistive load must be applied and this load brings down the Q until for maximum transfer, it is in the region of 12. Below this, the efficiency will fall off rapidly. Actually, a value of 15 will prove more suitable as it results in less interference, less tendency to harmonic radiation and greater linearity when using telephony.

Q decreases less rapidly with load if the L/C ratio is properly adjusted to suit the valve impedance and circuit conditions. Energy is drawn away continuously but, in Class C operation, energy is only being delivered to the circuit during a portion of the positive cycle. The main circuit elements—the inductance and capacity—must therefore store a certain amount of energy if oscillation is to be maintained and there must always be a certain minimum amount of capacity, the actual value depending on a number of factors, including frequency, valve impedance, load impedance, circuit arrangement (balanced or single ended) and whether

telephony of c.w. transmission is called for.

This effect is directly comparable to the flywheel in the car engine analogy. With a slow revving engine (low frequency) applied to a heavy load (low impedance), a heavy flywheel (large C) is necessary if the power is to be delivered smoothly, and **vice versa.**

Taking as an example a typical case —a valve such as an 807 running at 600 volts, 100 Ma.—in a single ended circuit, the minimum capacity including "strays" should be 25 pF. at 7 Mc., 12.5 pF. at 14 Mc. and so on. If the voltage is halved or the current doubled (but not in an 807!), the parallel resistance is halved and the minimum capacity must be doubled. In a balanced circuit, the parallel resistances are effectively quadrupled and a quarter of the above values is correct. But it must be remembered that, with a split-stator condenser, each section must be twice the value of the actual capacity, with some reserve in hand, of course.

The above applies equally to triodes and tetrodes depending only on the impedance, which, for this purpose, may be taken as the product of voltage over current. A push-pull amplifier, neutralised or not, and a neutralised single triode are treated as balanced circuits

All the above is in the books but it is not the whole story. In the first place, whilst more important in the output stage, the L/C ratio should be correct throughout the transmitter. Further, this applies not only to anode circuits but also to grid circuits, where possible, i.e. separately tuned.

At the higher frequencies—28 Mc. for example—the correct capacity values work out quite small and often smaller than the input or output capacity Therefore, a greater proportion of circulating current will tend to flow through the valve, including the comparatively thin wire used for the leads and seals. To prevent the increase in resistance loss caused thereby, it is important to ensure that the lumped capacity is at least equal to the valve capacity, and preferably rather greater Which explains why efficiency tends to fall off with high capacity valves at the higher frequencies and it is better practice to use low capacity triodes.

Other than losses, there is also the necessity of ensuring that actual balance does in fact exist in circuits using split stator condensers. A certain amount of minimum capacity—equal to or greater than the interelectrode capacities—must be present, even if the resulting effective capacity is greater than would normally be called for.

It will be seen that the minimum capacity of a transmitting condenser is relatively important, except when really low capacity valves are employed.

* * *

Having dealt with some of the major design factors, it is now proposed to pass on to some practical circuits, of the type generally used, and explain briefly the points which call for attention.

THE TRITET CIRCUIT

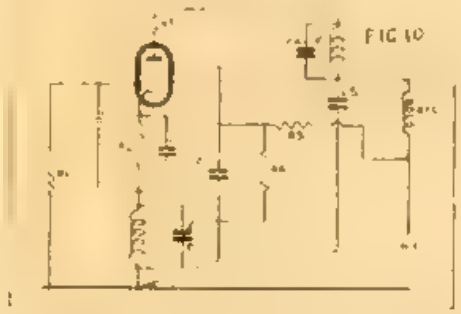
For some reason or other, the tritet circuit is not always popular but, providing the design is correct, no difficulty should be experienced with it. Fig. 10 shows a typical circuit. R1 should be high, for good harmonic output and no choke should be used in the grid circuit. C1 and R2 are desirable, to ensure ready oscillation. The cathode circuit must tune on the high side of crystal resonance, using a low L/C ratio—a capacity of 2 pF. per metre is correct for C2, which also acts as a by-pass condenser at the harmonic frequency. The screen grid should be fed from a potential divider and not allowed to float, the actual voltage being kept as low as possible, consistent with sufficient power output.

The resistor R3 is essential—a value of 22 ohms is usually satisfactory. The L/C ratio of the anode circuit should not be unduly high. Any tetrode is suitable, the 6V6 type being particularly recommended.

CRYSTAL OSCILLATOR

Fig 10 again applies, with the cathode circuit shorted out. For maximum output, the anode L/C ratio should be on the low side, a value of 1.5 pF. per metre being about right, i.e. 60 pF. for a 7 Mc. crystal. Either a triode or tetrode valve may be used, the latter being less liable to damage the crystal

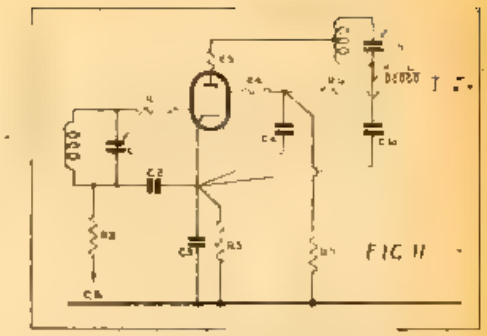
In both crystal oscillator and tritet circuits, the input power should be kept as small as possible, to prevent crystal heating and consequent frequency drift or damage. The anode circuit must be properly loaded up or the crystal current may be unduly high



FREQUENCY MULTIPLIER

In this service, the valve is operated under conditions which produce severe distortion. Grid bias and drive must be both greater than would otherwise be the case. A tetrode, with its high power gain, is most suitable but a triode can also give good results. The push-push circuit can be used for even harmonic production, with an increase in efficiency, since the anode circuit receives pulses of energy at twice the rate otherwise possible. Similarly, a push-pull stage is good for odd harmonic output.

Fig. 11 illustrates a circuit suitable for a single tetrode, complete with proper decoupling measures and precautions against parasitic oscillation. The anode is shown tapped down on the coil—a useful device at the higher frequencies to enable a high L/C ratio to be used. Otherwise, the anode circuit should be of the balanced type shown in Fig. 4.



BUFFER AMPLIFIER

The design factors are very similar to those called for in Power Amplifier stages. The power output requirements should be carefully studied so that the buffer stage is neither over nor under loaded

POWER AMPLIFIER

A large number of transmitting valves are available and the choice will generally be governed by cost, ready availability and power requirements. One point to remember is that it may be better in the long run to use a relatively expensive valve which is of the high current, low anode voltage type, rather than one which requires high anode voltages.

Whether triodes or tetrodes are used is also a matter of choice. Each have advantages and disadvantages, but triodes are definitely easier to adjust and more straightforward in operation. They are therefore recommended to those without much experience.

Tetrodes call for more care in construction rather than design. Better screening is usually required, and all metal parts, such as bases, unused pins, etc., should be connected to chassis by means of short, heavy leads, to prevent coupling effects. The applied voltages are more critical—in particular, the screen and control grid voltages should be as near the maker's figures as possible. It is not good practice to obtain the screen voltage via a dropping resistance, as this leads to poor regulation. Either a potential divider should be used, designed to hold the voltage reasonably constant, or a separate supply Inability to obtain satisfactory performance is more often than not due to maladjustment of the screen voltage, on which depends the anode current and the degree to which the anode circuit can be loaded

One effect of overdriving the valve will be to increase unduly the screen current. The voltage dropped across any resistance in series with the screen supply will also increase and it becomes a difficult business to secure proper adjustment. The moral obviously is to use no more drive than is adequate for the purpose and to feed the screen from a power supply of low impedance.

Another effect of overdriving is to produce high harmonic output. This is the object in a frequency multiplier but one to be avoided in a Power Amplifier.

A suggested circuit for a trouble-free power amplifier is given in Fig 12. Two tetrodes in push-pull are shown—if no suppressor grid exists, omit that part of

the wiring, whilst if triodes are used, omit the screen grid wiring.

Push-pull has many advantages, which show up particularly at the higher frequencies. The stray capacities—which include interelectrode capacities are in series and therefore much reduced. The valve impedances load up the tuned circuit less and circulating currents in the tuned circuits are smaller.

Probably the major advantage is the increased stability. As the frequency rises, the currents flowing through the various by-pass condensers increase and, at 28 Mc. for example, quite large currents would flow through C4 and C5, if only one valve was used. In the push-pull circuit, however, the currents set up by one valve are cancelled by those in opposite phase from the other and theoretically, no measureable current should be present, if the balance is perfect. The latter is, in practice, difficult to achieve but, nevertheless, stability is much enhanced

The screen grids are fed from a source of correct voltage, rather than via a resistance of comparatively high value in series with the anode h.t. supply. An iron cored choke is shown in series, to permit normal anode modulation—the screen potential will automatically adjust itself.

The suppressor grids are generally rated to run positive and a suitable potential is applied from the network R3, R4. R4 should be kept small—not more than 1,000 ohms—as "grid" current is possible and will otherwise affect the operating conditions.

The by-pass condensers can all be 0.002 uF. mica type, as no high d.c. or r.f. potentials should exist.

It would be well to include a fixed condenser (0.0001 to 0.001 uF. high voltage) between the rotor of C6 and earth, to remove the high d.c. voltage across C6. At the same time, the rotor should be connected to the centre tap on the coil, via the usual type of r.f choke

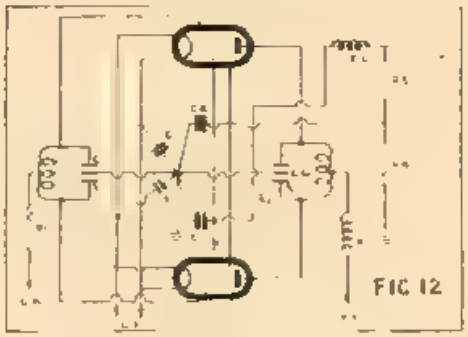


FIG 12

Two separate valves are shown in Fig. 12 but even better balance can be achieved if the two valves are enclosed in one envelope, with an additional screen by-pass condenser fitted internally. Examples are the Mullard QVO4/20 and QVO7/40, with both of which, useful inputs and outputs can be realised, with moderate anode volts, over all amateur frequencies including 60 Mc.

If space permitted, there are many other subjects which could have been included, such as modern tendencies towards bandswitching and the use of low Q circuits as means of simplifying the construction of multi-band transmitters Others are safety factors, plugs and socketry (power and r.f) metering, but they must be left for the present

But just a few general hints to conclude

1. Use efficient coils everywhere—not necessarily heavy gauge wire but with spaced turns and proper ratio of diameter to length. Long narrow coils have low natural Q values.

2. Keep all heater or filament volts at or just above the rated value efficiency and output fall off rapidly with reduced voltage and harm is also caused to the valve

3. Tune up on low power—advice frequently given but rarely acted upon. This is particularly important in the case of pentode or tetrode valves

4. Fit a meter permanently in the grid circuit of the power amplifier and monitor the operation of the transmitter by watching grid current. If the latter is incorrect, then trouble is developing somewhere

RADIO WAR

Some interesting details of the Radio War between England and Germany appear in the N.S.W. Divisional Notes. We recommend your perusal

FIFTY AND UP

It is regretted that notes received from Divisions for Fifty and Up have not appeared in print. They were forwarded to the person responsible for the compilation and were not returned in time.

RESULTS OF VK DX CONTEST

E. H. JENKINS, VK3QK, CONTEST MANAGER

The W.I.A. 1947 DX Contest was an outstanding success and judging by the scores and number of logs entered, the best yet held. Most logs were accompanied by appreciative letters complimenting the W.I.A. on the organisation and publicity, although many overseas stations expressed disappointment at the ZLs not being included as in pre-war Contests. We trust that ZLs may be with us in the future.

Conditions were good generally, rather favouring the c.w. section on the latter week-ends.

The phone entries were very disappointing however, and many stations who participated in the Contest did not even send in check-logs. Wouldn't the "big phone men" like to see their calls down low on the lists?

The Receiving Section was VERY poorly represented, only two scoring VK logs being entered. A couple of logs were also entered, but no attempt was made to calculate their scores, nor did they apparently read the rules correctly.

Heartiest congratulations must be given to VK2EO for his sensational score. It is a wonderful tribute to his operating (and endurance), and he must be definitely rated the top DX-man of the year. He had a total of 750 QSOs with a multiplier of 85 countries. He worked 58 countries on 14 Mc., 19 on 28 Mc., 3 on 27 Mc., and 5 on 7 Mc. The many countries worked would make the average Ham green with envy. Congrats, Dave, glad you enjoyed it so much and hope you will be in it next year.

VK2DG, using 80 watts to a half wave vertical, had a total of 472 QSOs and 76 countries on 14 Mc. The outstanding fact of his log was that it could not be faulted. Nice operating!

VK4AP contacted 32 countries on 28 Mc. and used 60-70 watts with stacked 8JK's on Europe and South America, and a folded di-pole on North America and South Africa.

VK6RU worked 42 countries on 28 Mc. in 150 QSOs, and 235 QSOs with a multiplier of 70 countries in the Open Section. A great performance on phone.

VK2ADT, also on phone, returned a splendid log, working 5 bands, but only entered the 28 Mc section with 245 QSOs and 37 countries.

VK3IG on 14 Mc. phone had 245 QSOs and 37 countries to his credit; another great effort.

The most outstanding DX station was XE1A, who worked 5 bands c.w. having 227 QSOs and a multiplier of 20 VK districts. On phone, working 4 bands, he had 175 QSOs and a 16 multiplier. He used a 3 element rotary on 28 and 27 Mc., folded dipoles on the other bands with 750 watts input, phone and c.w. It was an excellent log and could not be faulted

Most logs were clear and concise, although a few were quite the opposite. Many check logs were also received. Thanks a lot, chaps.

The W.I.A. thanks all entrants and manufacturers who donated the prizes for making the Contest the success it was, and hope you, and lots of others, will make the 1948 Contest an even bigger one.

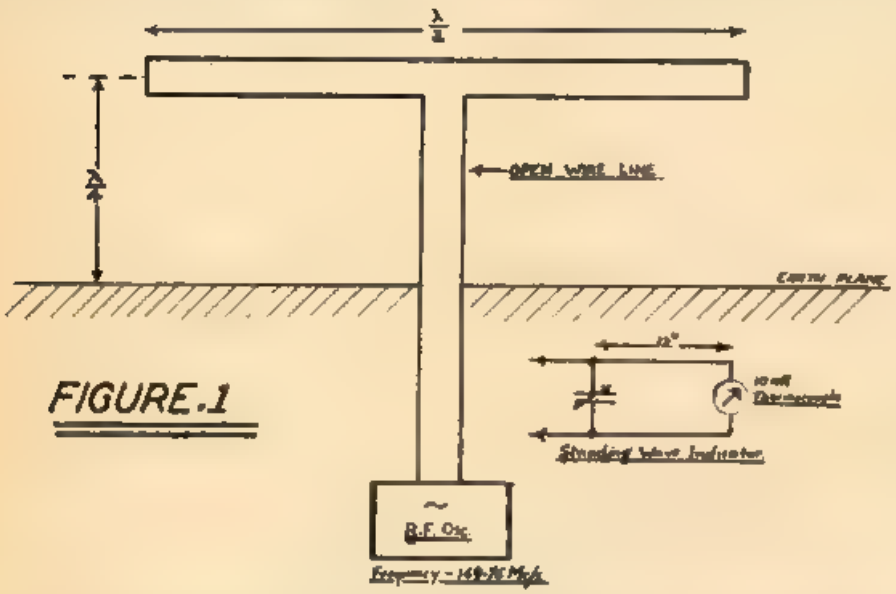


FIGURE.1

This is the illustration which should have accompanied the article, "Some Measurements of the Impedance Multiplication Factor of Folded Dipoles," by J. O'Shannassy, VK3YC, in the January issue.

AUSTRALIA
C.W. SECTIONS
Open

VK2EO	190,230	VK2GW	27,814
2ZC	97,773	4RC	25,584
2ANN	91,665	3PG	16,848
2RA	73,392	6RF	14,601
2YL	57,879	7LZ	12,528
3XK	43,845	2MT	10,425
7LJ	40,764	5FM	9,951
3XQ	40,119	5LD	6,150
3HG	36,000	3JA	5,700
2YC	34,020	3RJ	3,672
5KO	33,010	2HI	2,565
		7AL	1,296

	28 Mc.		
VK4AP	23,808	VK3HT	9,504
2HO	20,358	2NY	9,225
2JX	19,932	2AHM	8,073
5LJ	12,180	2ANN	4,131
2GW	11,340	3XK	4,020
3PG	9,900		
	14 Mc.		
VK2DG	107,616	VK3KB	8,346
2ZC	97,773	3JI	8,325
2AHA	91,465	3AJB	6,630
3CN	57,888	3YF	5,406
2QL	53,880	3FH	5,100
2NS	43,665	4RF	4,182
3MC	41,310	3LN	3,115
7LJ	40,764	3ADG	2,730
2ANN	40,672	2VG	2,688
5JS	35,340	5LU	2,688
3XU	26,076	5RL	2,025
5RX	25,623	7DS	1,353
3EK	21,216	2OA	870
3XK	20,280	3AT	720
7RK	15,390	3ARE	432
5DQ	10,764	2RB	324
4TY	10,281	3ACT	270
4DO	8,517		
	7 Mc.		
VK3DQ	540	VK2ANN	336
2RA	432	3XB	198
3HG	360		
	3.5 Mc.		
VK2RA	54	VK2ANN	6
3HG	48		
	27 Mc.		
	VK2ANN 27		

PHONE SECTIONS

	Open		
VK6RU	49,350	VK3IG	27,195
6HL	34,182	2YL	6,324
6FL	32,088	3HG	2,550
2ADT	29,160		
	28 Mc		
VK2ADT	19,980	VK4HC	2,280
6RU	18,900	2NY	2,166
2FP	13,872	3QK	2,340
2AGD	13,248	5KL	1,890
5LC	7,050	2JX	1,320
2AHM	4,050	3BW	162
2RB	2,700	3VQ	135
	14 Mc.		
VK3IG	27,195	VK2WD	2,475
3LN	10,440	2VG	24
4KS	9,984		
	3.5 Mc.		
	VK2RA 180		

RECEIVING SECTION

Eric W. Trebilcock	3,510
Maxwell W Rieper	3,277

OVERSEAS

C1CH	975	Open	Phone
C1AN	48	Open	Phone
CE3AG	900	14 Mc.	C.W
CE4AD	42	14 „	C.W.
CT1NT	3	14 Mc.	C W
EI4Q	375	14 Mc.	C.W.
F9DZ	30	14 Mc.	C.W.
G2FXQ	1,278	14 „	C.W.
G2FRW	684	14 Mc.	C.W.
G3BI	2,457	Open	C.W.
	1,476	14 Mc.	C.W.
G3AGM	300	28 „	Phone
G3SB	45	14 „	C.W.
G4RX	465	28 „	C.W
G4LX	96	28 „	C.W.
G5SR	972	14 „	C.W.
G5RF	720	28 „	Phone
G5DF	480	Open	Phone
G5AX	345	14 Mc.	C.W.
G5MY	284	14 „	C.W.
G6CJ	4,875	Open	C.W.
	1,242	14 Mc	C.W.
	795	28 „	C.W.
	18	7 „	C.W.
G6GN	3,597	Open	C.W.
G6BQ	3,267	Open	C.W.
	1,332	14 Mc.	C.W.
	375	28 „	C.W.
G6RB	1,560	Open	C.W.
G6XL	486	14 Mc	C.W
G6RC	150	14 „	C.W.
G8IG	5,082	Open	C.W.
	1,800	14 Mc.	C.W
	810	28 „	C.W.
G8IH	3,630	Open	C.W.
	1,500	Open	C.W.
G8KP	480	14 Mc.	C.W.
	270	28 „	C.W.
G8QX	1428	Open	Phone
	780	28 Mc	Phone
	96	14 „	Phone
	1290	Open	C W.
G8QZ	840	14 Mc	C W
	270	28 „	C W
[illegible]	1,053	Open	C.W.
G8KG	810	14 Mc	C W
G8VV	450	14 „	C.W.
GM4UU	36	Open	Phone
GM5IR	702	Open	C.W.
GM8SQ	1,377	Open	C W.
GW3ZV	2,286	14 Mc	C.W.
GW4CX	345	14 „	C.W.
HB9AW	60	Open	C.W.
HK4CO	300	28 Mc	Phone
I1MH	2,090	Open	C.W.
I6ZJ	2,754	Open	C.W
J2AAY	738	14 Mc	C W
KG6AL	3,508	Open	C W.
KG6AI	2,210	Open	Phone
	2,210	14 Mc	Phone
KH6BW	1,782	14 „	C.W.
KH6BI	840	28	C W
KH6IJ	660	Open	C.W.
KL7MH	720	Open	C.W.
KP4KD	1,050	Open	C W.
KZ5DX	666	14 Mc	C W
KZ5AW	240	28 „	C W
LA7Y	2,220	Open	C.W.
LX1SI	285	28 Mc.	Phone
MD1D	630	14 „	C.W.
NY4CM	1,008	Open	C.W.
	12	14 Mc.	Phone
OH2NB	1,080	Open	C.W.
	300	14 Mc.	C.W
	288	28 „	C.W.
OH2PK	420	Open	C.W.
OH2OB	36	14 Mc	C.W.
OH3NB	1,530	Open	C.W.
OH5NF	1,380	Open	C.W.
OH5HM	45	14 Mc.	C W.
OH6NZ	132	14 Mc.	C.W.
OK1JB	1,026	Open	C.W.
	36	Open	Phone
ON4NC	350	Open	C.W.
OZ7EU	225	Open	C.W.
OZ7HM	54	14 Mc.	C.W.
OZ9Q	3,201	Open	C.W.
	1,152	14 Mc	C.W.
	495	28 „	C.W.
	288	28 Mc	Phone
OZ9Q	621	Open	Phone
	63	14 Mc	Phone
PA0OO	3,300	Open	C W
	96	28 Mc	Phone
PA0RL	126	14 „	C.W.
PA0FB	96	Open	Phone
PK3MR	220	Open	Phone
PK4KS	936	14 Mc	C.W
PK4KD	108	Open	C W.
SM5PA	240	Open	C W
SM5WL	9	14 Mc	C W.
SM5RF	3	28 Mc.	Phone
TG9JK	195	14 „	C W
	108	14 „	Phone
VE1EA	936	14 „	C.W.
VE3GT	204	14 „	C.W.
VE3ADV	120	14 „	C.W.
VE3AFY	54	28 „	C.W.
VE4RO	1,440	Open	C.W.
VE5QZ	24	7 Mc	C W
VE6BU	63	Open	C.W
VE7ZM	3,024	Open	C.W.
VQ2GW	180	14 Mc	C.W.
VR5PL	3,840	14 „	C.W.
	324	14 „	Phone

VU2BF	774	Open	Phone
VU2KM	63	28 Mc	Phone
VU7JU	36	28 Mc.	Phone
XE1A	13,620	Open	C.W.
	8,400	Open	Phone
XE1FE	540	28 Mc.	Phone
XZ2YT	744	28 „	Phone
YS1JR	36	14 „	C.W.
ZE2JA	240	28 „	Phone
ZS2BU	621	Open	Phone
ZL1MB	2,682	14 Mc.	C.W.
ZL1DV	2,190	Open	C.W.
	2,160	Open	C.W.
	832	28 Mc	C.W.
ZL1MR	84	7 „	C.W.
	330	28 „	Phone
	330	Open	Phone
ZL2MM	288	7 Mc.	C.W.
ZS5U	3,069	Open	C.W.
	360	28 Mc.	Phone
ZS5HC	567	Open	C.W.
ZS5BW	18	14 Mc	C.W.
ZS6BJ	18	14 „	C.W.

American C.W.

W0GKS	3,276	14 Mc.	
0MPW	1,215	Open	
0YCR	645	14 Mc.	
0CTR	435	14 „	
0DAE	240	14 „	
W1RY	4,053	14 „	
1OJM	1,494	14 „	
1BIH	390	14 „	
1BOD	324	14 „	
1CDX	132	14 „	
1BDU	108	14 „	
W2BBK	2,430	14 „	
2DKF	1,476	14 „	
2CVQ	1,215	Open	
2IFA	954	14 „	
2ATE	864	14 „	
2HAZ	522	14 „	
2EQS	414	14 „	
2LRG	195	14 „	
2DS	192	14 „	
2UVE	180	Open	
2EWT	81	7 Mc.	
2QQ	33	14 „	
W3BES	9,516	Open	
3GHD	2,772	14 Mc.	
3DKJ	1,848	14 „	
3LPE	1,548	14 „	
3FQB	1,350	14 „	
3FGB	1,134	14 „	
3EIV	1,089	14 „	
3KAT	1,044	14 „	
3DXN	675	14 „	
3DRD	285	14 „	
3CTE	240	28 „	
3LMM	240	14 „	
3ARK	60	14 „	
W4FIJ	2,935	Open	
	1,764	14 „	
4LIU	81	28 Mc.	
	18	7 „	
4KVX	1,449	14 „	
4TM	720	14 „	
4MR	420	28 „	
W5KC	2,499	14 „	
5FNA	840	Open	
5JPC	180	14 Mc.	
W6HZT	11,475	Open	
6PNO	5,362	Open	
6HJE	1,800	Open	
6DTY	1,470	Open	
6MHF	810	14 Mc.	
6EJA	450	14 „	
6VNH	435	28 „	
6DQZ	216	14 „	
6CEO	210	14 „	
W7JPY	1,716	Open	
7JFU	384	28 Mc.	
W8BHW	16,932	Open	
8JIN	16,524	Open	
8JIN	16,524	Open	
	4,662	14 Mc.	
8PQQ	1,386	14 „	
8EXI	954	14 „	
8SYC	882	14 „	
8MQR	882	14 „	
8LFE	574	14 „	
8DAE	546	Open	
8BSR	69	Open	
8ZJO	360	14 „	
8ZBC	204	Open	
8KPL	171	14 „	
8QHV	288	Open	
W9AEH	10,656	Open	
9VW	3,549	14 Mc.	
9NII	2,052	14 „	
9RHP	1,332	14 „	
9PNE	1,512	14 „	
9MZP	540	14 „	
9ZQX	345	14 „	
8YIN/9	255	14 „	
9FKC	165	14 „	
9HVM	30	14 „	
9KYX	18	7 „	

American Phone

W3BES	928	Open	
3DKJ	540	14 Mc.	
3FGB	96	14 „	
3CTE	6	28 „	
W4TM	1,260	14 „	
W6VNH	204	28 „	
6WCQ	72	28 „	
W7JPY	360	Open	
W8BHW	3,816	Open	
W9NII	144	14 Mc.	

Overseas Receiving

BRS-1535	4,323	Open	
BRS-15024	3,861	Open	
	1,638	14 Mc.	
	390	28 „	
BRS-250	774	14 „	
OE351	378	Open	
OE059	345	14 Mc.	

SUCH NICE PEOPLE

By "GREMLIN"

Bright New Year to you all. Better late than never but didn't catch on the month was only a week Anyhow being time of year when all peoples chuck goodwill, peace and like things about, far be it from me to differ.

How did you like the 7 Mc. band over the holiday season, portables and all that? 2AWW with splash and distortion was about the worst portable I identified, but don't worry about it o.m., I could understand you which is more than I can say for quite a few. What beats me they seemed to be working somebody so I don't know.

Before I forget and 3XF gets a bead on me, humble bending of knee to you o.m. My remarks re clicks were intended for 2XF, sorry for mistake in print. (Hon. Ed., not your fault, I'll admit I was trying to use two fingers on the 'writer)

And do I hear fairy footsteps? Faint ploddings of the fairy, King Nan, I guess. Which is funny sorta handle for a fairy, but maybe it got that way being next in line to a Jig Mike, or maybe it had something to do with being the big shot around where rivers flow bottoms up (no relation to sending a drop). Anyhow, no matter, a fairy by any name be she blonde or slightly moth chewed, is sweet. If my old cobber Bill was still around he would probably dash off an ode to a disposal joint, something like.

Xmas has gone,
Stocks don't seem to fall,
Looks like the straight eight,
For the old three ball—we hope!

You may remember Bill, he was always chucking doublets and couplets together at his Avon QTH. Around about the time 2NO and 3UN went on the air!

Which has nothing at all to do with splashing from 3XD, 2ALO, 3IE, 3ADS, 4HG, 2AGM, 2AJX, 3DQ, 2ACD, 5CH, 3ANB, 3VB and 3LU. Hang on, that's not all, they get worse now. 2FH and 4FW add hum, and 3UE's 39 straight CQs. Dick (2ADW) yours is a mighty ooze out the high frequency side.

For distortion, I recommend 3SJ and 3AWW, with hum added by 3AKO and 3RL. 7AG's carrier has hot feet to make it even harder—I don't think it's meant to be f.m. 2ACU, 2TG and 5ZR just hum

Clicks seem to be getting more prevalent the last couple of months. Plenty from 4DA, 3ANL, 7YY, 3FC, 3AH, 2ADE, 3AIG, 3WW, 3DN, 4VU, 3ZV, 7OM, 3IU, 3AKP, 3DQ and 3YF.

For a couple of really punk c.w. sigs you couldn't wish for better than 3TR and 3UB produce. They have everything T9X doesn't cover, with the operating standard on a par I might even go as far as saying this 3TR hasn't paid the necessary quid Funny thing I've noticed a few broadcasting station calls on our bands of late. Must buy me a new call book and look-see. Yep, don't rub it in, I know I growled about the lack of an up-to-date list, now it's here I haven't got it—a poor show, what!

While we are on this operating standard business, what's all this whistling and blowing that goes on with some phone merchants? If it's cobwebs that worry you, switch off mike between blows, please. Funny thing it's these merchants who produce CQs by the dozen between call signs. Blokes like 3ANL, 3KF and 3ANB I refer to. They aren't the only ones, but a fair sample I guess. You know, I must be a patient sorta dope for I listened to 3ANB for five minutes on one occasion, five minutes of whistling, blowing and CQing before he let go a call sign. Did anybody come back? The answer is obvious.

3ANL, you sound like a young and eager sorta cove, obviously getting a kick out of this game. To you and any newcomer, may I offer a spot of advice? You get far more QSOs by listening, picking your mark and calling, than by endless CQing. Try it. I'm sure any old timer will agree with me there. I learnt the hard way and boy it's not hard to become disillusioned

2ACS also prone to wander on with CQs and no call sign. Thirty about your best score o.m.

Should I run a line through 7YY in the "clicks parade" following his remarks in the January Mag? Now this isn't soft soap. If you wanta hear a swell fist listen to him. If you don't agree with his remarks I'm sorry for you.

V.F.O. user 2OJ watch out. Them things a bit hot at the moment—and rightly so in a lot of cases. Followed your carrier around the band and finally got you signing—once!

If it's a new year resolution you want, try skipping "HI" on phone—if you can't laugh, it's not funny is my guess.

AN OPPORTUNITY TO WIN A "EDDYSTONE" RECEIVER

World Wide Competition of Interest to All Radio Amateurs

The Eddystone "640" Communications Receiver has been designed and produced by professional engineers, with long and extensive experience, and well versed in amateur radio technique. The "640" not only possesses a first-class electrical performance but is also a sound engineering job, built "to take it" in any climate

The "640" is well known to British amateurs, many of whom are, with its aid, working more DX than ever before.

To obtain overseas publicity for the "640" Receiver, and to give overseas Radio Amateurs and Short Wave Listeners an opportunity of competing for one, the manufacturers of Eddystone Receivers have decided to present, free of charge, a new Eddystone "640" Receiver to the writer of the best article on one of the three following subjects —

(i) How do you visualise the application of the new Micro-wave Channels shortly to be allocated to Radio Amateurs?

(ii) It is evident that Band Planning will be essential if the most is to be made of the Amateur Bands. What proposals have you to make in this connection?

(iii) What are your views on the subject of the relative merits of British and American Communications Equipment? (We wish to make it clear that articles on this subject should be written without prejudice.)

Choose one of these—the one you feel you can write about easiest—and write an article about it, running to not more than 1,500 words. To the writer of the best essay, an Eddystone "640" Receiver will be presented FREE. When judging the work, points will be awarded not only on literary style but also on clarity, force of argument, constructiveness and other similar factors. All, therefore, have an equal chance.

The following have kindly consented to act as judges'—

Mr John Clarricoats, General Secretary, R.S.G.B

Mr. Austin Forsyth, O.B.E., Editor Short Wave Magazine.

Mr. Geoffrey Parr, M.I.E.E., Editor Electronic Engineering

Competition Rules

1. Write an article of not more than 1,500 words on any one of the specified subjects.

2. All entries to be preferably typed or, alternatively, written in ink, on one side of the paper only, with wide margins

3. Entrant's name, full address, and occupation to be clearly shown on each entry

4 Entries to be posted in sealed envelopes, marked "Competition" in top left-hand corner, to Stratton & Co. Ltd., Eddystone Works, Alvechurch Road, Birmingham, 31, England.

5. Closing date for the Overseas Competition is 30th April, 1948

6. The prizewinner will be notified by cable as soon as possible after the closing date

7 The copyright of all entries is reserved by Stratton & Co. Ltd.

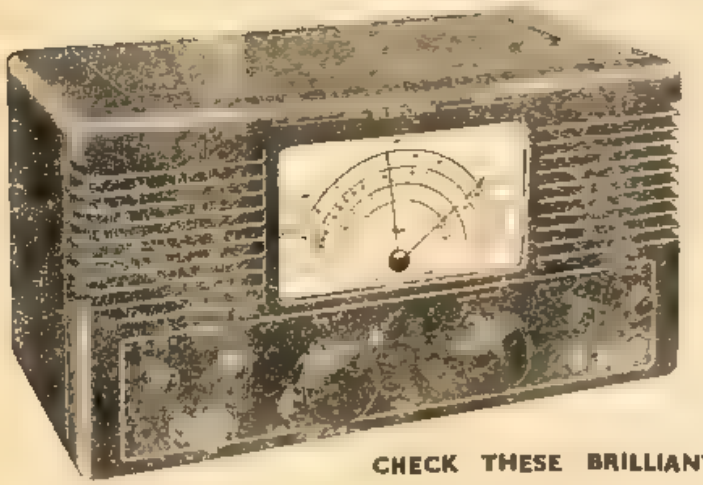
8. Competitors must be resident outside the United Kingdom.

9. It is a condition of entry that the judges' decision is final and legally binding. No correspondence can be entered into on the subject of the Competition.

The Eddystone "640" Receiver has been specifically designed to fulfil the amateur enthusiast's needs for a really first-class Communications Receiver It is a nine-valve superheterodyne with electrical bandspread over the whole tuning range, the amateur bands being distinctively marked. Continuous tuning from 31 Mc. to 1.7 Mc. The circuit includes a triode hexode frequency changer preceded by a high gain low noise r.f. stage; two i.f. stages with crystal filter; combined detector, a.v.c., and first audio amplifier; noise limiter; b.f.o.; beam tetrode output valve, and rectifier Efficient vacuum mounted 1.6 Mc. Crystal Filter; stand-by switch; provision for "S" meter Steel cabinet is handsomely finished a fine Ripple Black.

THE "TOPS" in AMATEUR COMMUNICATION RECEIVERS

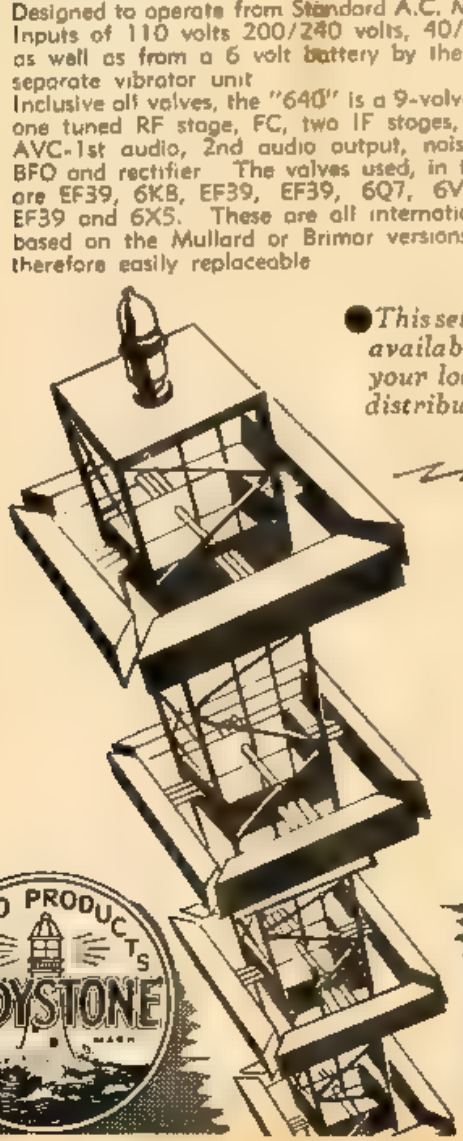
The EDDYSTONE "640"



— ACCLAIMED EVERYWHERE AS THE FINEST "HAM" SET YET DESIGNED!

CHECK THESE BRILLIANT FEATURES:—

1. Receiver has been designed primarily for Amateur Communication purposes, tuning range from 31 Mc/s to 1.7 Mc/s
2. Designed to operate from Standard A.C. Mains with Inputs of 110 volts 200/240 volts, 40/60 cycles as well as from a 6 volt battery by the use of a separate vibrator unit
3. Inclusive all valves, the "640" is a 9-valve job with one tuned RF stage, FC, two IF stages, detector-AVC-1st audio, 2nd audio output, noise limiter, BFO and rectifier. The valves used, in that order are EF39, 6K8, EF39, EF39, 6Q7, 6V6, EB34, EF39 and 6X5. These are all international octal based on the Mullard or Brimar versions and are therefore easily replaceable
4. INPUT IMPEDANCE—400 ohms
5. TUNING RANGE—
   (1) 31 to 12.5 Mc/s.
   (2) 12.5 to 5 Mc/s
   (3) 5 to 1.7 Mc/s
6. TUNING. An electrical band-spread arrangement is used for this purpose. Fly-wheel control is utilised on the band-spread condenser drive. The scale is clearly marked with all amateur bands, and is so arranged to enable accurate re-setting to a spot frequency.
7. I.F. FREQUENCY—1600 Kc/s.
8. CRYSTAL FILTER is a vacuum mounted to provide a high degree of stability. Phasing control and "in/out" switch are brought out to the front panel.
9. Sensitivity is better than 2 microvolts input, for 50 milliwatts output, at all frequencies.
10. OUTPUT. Audio frequency output exceeds 3.5 watts.
11. "S" METER. A socket is provided for an external "S" Meter



This set is now available from your local . . . distributor.

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RADIO PRODUCTS EDDYSTONE TRADE MARK

EDDYSTONE OFFERS YOU THE LATEST, MOST DEPENDABLE COMPONENTS for FM., AM., & PULSE

B.E.R.U. CONTEST, 1948

GENERAL RULES

1. The event will be divided into three sections, namely:— (a) Senior (high power) Transmitting Section; (b) Junior (low power) Transmitting Section; (c) Receiving Section. The three sections will be run concurrently.

2. The Contest is open to all British subjects living within the British Empire and British Mandated Territories and to British Occupational Forces operating properly authorised stations, who are fully paid-up members of either the R.S.G.B. or one of the British Empire Societies. All entrants agree to be bound by the Rules of the Contest.

3. Entrants who are not members of the R.S.G.B. must certify in the declaration that they were fully paid-up members of their local society at the time of the Contest.

4. An entrant not located in one of the prescribed Prefix Zones shall be considered as being in the Prefix Zone nearest to his station.

5. Contacts with, or reports from, ships or unlicenced stations located in countries where licences are obtainable will not be permitted to count for points. The decision as to whether a station is to be clased as unlicenced will rest with the R.S.G.B. Contest Committee.

6. Only one person will be permitted to operate a specific station for the duration of the Contest.

7. A trophy will be awarded to the fully paid-up member of the R.S.G.B. scoring the highest number of points in each section of the Contest. Certificates of Merit will be awarded to the first three stations in each section and also to the leading station in each Prefix Zone, providing at least three entries have been received from the zone in question. In addition a second certificate will be awarded to each zone provided ten or more entries are received from that zone.

8. The declaration at the foot of the Entry Form must be signed by the operator, who will be recorded as the competitor.

9 Entrants must provide their own log sheets which, together with the analysis sheet, must be legibly written or typed as set out on the next page. Incomplete entries will be disqualified.

10. All entries must be posted within seven days of the close of the Contest. No entry will be accepted at R.S.G.B. Headquarters, New Ruskin House, Little Russell Street, London, W.C 1, later than 14th June, 1948.

11. The judging of entries will be carried out by the R.S.G.B. Contest Committee. The President's decision will be final in all cases of dispute.

12. No correspondence can be entered into regarding any decision made by the President or Council

13. The Contest will extend from 0001 GMT, Saturday, 3rd April, 1948, to 2359 GMT, Sunday, 4th April, 1948, and from 0001 GMT Saturday, 17th April, 1948, to 2359 GMT, Sunday, 18th April, 1948.

14. Contest operation during local hours of restrictions in the use of electricity for wireless which have been publicly announced is forbidden. The duration of any such restrictions will be recorded on the entry form.

RULES FOR THE TRANSMITTING SECTIONS

1 Fifteen points will be scored for the first contact on a specific band with a British Empire station located in any Prefix Zone outside the competitor's own zone. Fourteen points will be scored for the second contact on the same band with the same zone, thirteen points for the third contact, and so on to the fifteenth contact, which contact will score one point. All contacts with that particular zone on that band thereafter will count one point each. This scoring procedure will be repeated on each band to encourage multi-band operation.

2. Only one contact with a specific station may be made on each band during the Contest.

3. The Contest is open for two-way c.w contacts only on any amateur frequency band, providing the input to the valve or valves delivering power to the aerial is not in excess of that specified on the competitor's licence and in no case more than 150 watts in the Senior (high power) Section and 25 watts in the Junior (low power) Section, and providing the entrant has permission to operate his station on the band or bands in question

4. The conditions laid down in the entrant's transmitting licence shall be observed

5. A serial number consisting of six figures must be exchanged before points may be claimed. The serial number is made up of RST and three numerals denoting the number of the contact, the first contact being 001, and so on.

6. Entrants receiving consistent tone reports of less than T8 will be disqualified.

7. Specially appointed Band Monitoring Stations under the auspices of the R.S.G.B. will be active during the Contest. Any station reported off frequency by these checking stations will be disqualified without appeal.

RULES FOR THE RECEIVING SECTION

1. One point will be scored for each British Empire c.w. station heard working another British Empire c.w. station, providing the station heard is located outside the competitor's Prefix Zone. An additional 50 points will be scored for each Prefix Zone heard on each band (i.e. 51 points will be scored for the first station heard in a particular zone and one point for each subsequent station heard in the same Prefix Zone on the same band). This scoring procedure will be repeated on each band to encourage multi-band reception.

2. Before a point can be claimed, the following information must be logged.— (a) call of station heard; (b) call of station being worked; (c) entrant's report on the signals of the station heard (RST); (d) the Serial Number given by the station heard to the station being worked.

3. CQ and Test calls will not count for points.

4. The same station may only be logged once on each band during the two week-ends of the Contest.

FORMAT OF THE B.E.R.U. ENTRY FORM

B.E.R.U. Contest, 1948 **Section**

Name (Block Letters) Call Sign

Address

Transmitter

Input Power to last valve(s)

Receiver

Aerial Systems used .....

Date	G.M.T Contact Established	Band Used Mc.	Callsign of Station Worked	Serial Numbers		Points Claimed
				Sent	Rcvd.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				001		
				002		
				etc.		
				TOTAL		

DECLARATION –

I hereby certify that my station was operated strictly in accordance with the rules and spirit of this Contest, and I agree that the decision of the President of R.S.G.B. shall be final in all cases of dispute.

Date Signed

If an entrant is a non-member of the R.S.G.B., he must sign the following additional Declaration:—

I hereby certify that at the time of the Contest I was a fully paid-up member of

Date ... Signed

PREFIX ZONE CHART AND SPECIMEN SCORE ANALYSIS SHEET

Prefix Zone	...Mc. Contacts	...Mc. Points	...Mc. Contacts	...Mc. Points	...Mc. Contacts	...Mc. Points
G2, EI, G, GC, GD, GI, GM, GW ..						
G4, VS6 ..						
VS9, SV0, X ..						
MD1, 2, ZB1, 2 ..						
MD3, 5, ST, VQ0 (MD4)						
MD6, VS9, VU7 (VS8)						
VE1						
VE2						
VE3, 4 ..						
VE5, 6						
VE7, 8						
VK2 3, 7 ..						
VK4 ..						
VK5 6, ZC2, 8						
VP1 2, 3, 4, 5, 6 ..						
VP1 5, 7, 9						
VP2 3, 4, 6						
VP8 ..						
VQ 3, 4, 5, ZD6 ..						
VQ2, ZE ..						
VQ8, 9						
VR1, 2, 3, 4, 5, 6 ZK1, 2, ZM ..						
VS1, 2, 4, 5 ..						
VS7						
VU2						
VU5, XZ2						
ZC4 (MD7) ZC6 ..						
ZD1 2, 3, 4, 8, 9 ..						
ZL1, 2, 3, 4 ..						
ZS1 2, 3						
ZS4, 5, 6						
TOTALS						

NOTE.—Some of the above prefixes may be out of date at the time of the Contest.

(Continued over)

RECEIVING CONTEST

The entry form for this Contest should be prepared on the lines set out above with the following amendments:—

Column 2, GMT station heard.
Column 4 Station heard
Column 5: Entrant's report on station heard.
Insert new Column Station being worked.
Column 6: Serial number given by station heard to station being worked.

MAKE SURE YOU HAVE READ THE RULES CAREFULLY AND DO NOT FORGET TO SIGN THE DECLARATION AT THE FOOT OF THE FORM. SUGGESTIONS FOR FUTURE CONTESTS ARE INVITED.

THIS COULD HAPPEN TO YOU

By LEITH COTTON*, VK5LG

The following is a copy of a recent newspaper cutting:—"The recent sad fatality where Mr. L. S. Cotton, a prominent Radio Experimenter, was accidentally electrocuted at his home last week only proves how dangerous electricity is—the sad part about this case was that Mrs. Cotton, seeing her husband lying dead, caught hold of him and was also killed. Cotton, who operated VK5LG was carrying out experiments with other Hams and did not switch off his gear while making alterations, thus at a blow a whole family was wiped out."

This is a fictitious cutting, but read on

Sad aint it, mate, but it could and can happen to you or me—I very nearly clicked I caught hold of the wrong lead and the earthed shielded cable from my pre-amp was resting on my neck. I collected 750 volts a.c. and am lucky I was thrown 10 feet. I might have been lowered 6 feet—into a hole

Brother Ham, perhaps you were still wet behind the ears when Ross Hull (A5JU) was going, but he, to a great extent, re-organised Ham Radio and made the game like it is today. Ross preached "safety first" as a member of A.R.R.L. staff, but he got his from a television receiver.

Look through the records, dozens of Hams have been injured or killed by the bite from the rig—far too numerous to name individually. Every day we read of somebody in all walks of life dying of electrocution, yet we still go on mucking about with our own little deathtraps.

Friend Ham remember this, "Death is permanent, electricity helps make it so."

I will refrain from telling you how to place fuses and switches but brother, before you do anything at all on that rig of yours, see all switches are OFF, all circuits are dead all condensers are discharged.

Does your wife, your son or daughter, your mother, your father, your friends know where the main switch is placed? Can they reach them in a hurry? Ten seconds is enough in boxing or sparks. Do they know what to do should they come and find you hunched up across some wires, etc?

Do you know what to do if you walk into a pal's shack and find him in such a condition? Learn my friend, learn—take your relatives or pals, show them the lay-out AND ALL SWITCHES. Explain to them and if you do not know artificial resuscitation, LEARN IT PRONTO. The Schafer method is simple and easy to learn and memorise, and if in its use you only save one life, it is time well spent.

Any person versed in ambulance work or a St. John Ambulance member will be only too pleased to demonstrate to you and instruct you.

Remember employees of power companies or trusts are not allowed to work on even 240 lines unless a mate stands by. Yet you are playing with 500, 600, and 1,000 volts all on your pat, risky? Yes, but with simple precautions, not so risky, and the precautions are your own personal pigeon

I'm lucky, I was careless but I live to tell about it. Perhaps I was spared to preach the gospel of safety first to others, perhaps the resistance of my body was greater than the current expected; perhaps "Someone up above" reached His hand for the big switch and then stayed it, for what reason I may never know; perhaps, perhaps, perhaps.

Now when I want to change coils, leads or what have you, I put off all switches and go collect the fuses before the gear gets even examined. Yeah, in my trade, structural steel boilermaker, I have often to climb great heights into awkward places and early I learned that climbing is played for keeps. There are no second chances for the careless; the earth is as hard at 20 feet as it is at 100 Remember the power supplies of your gear at home, or even portable, plays keeps also and so don't give it even a first chance Fellow Hams remember Ross Hull, Phil Murray and others and be careful; have good earths right leads and patience enough to go for that switch. A LIVE VIOLET IS BETTER THAN A DEAD ORCHID, so 73 and c.u.l. from "Five Little Girls" in South Australia

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Browsing around recently I read this: "The Radio Amateur regards his position with a great deal of pride. He has obtained his licence by learning many necessary facts about radio and by learning the International Morse Code well enough to send and receive messages at the prescribed rate, or better. An examination is held to determine the fitness of the applicant. Applicants passing the examination are granted an operator's licence. This licence, which may be revoked for violations of regulations, is zealously guarded by the holder as his certificate of membership in the fraternity of Amateur Radio Operators." I think it is worth repeating—AND THINKING ABOUT during 1948

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* 317 Cross Rds., Clarence Gardens, S.A.

FEDERAL NOTES

Federal Secretary: W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne

DX C.C. RULES

Due to several anomalies which have arisen over the checking of confirmations by Divisional Officers so appointed under Rule 12, Federal Executive have decided to appoint an Award Committee to check all cards from claimants, in order that central records may be kept and so obviate future difficulties. The Committee will consist of the Federal QSL Manager, the Federal Traffic Manager and the Federal Secretary. All claimants for the Award should now send their cards for checking to the Federal Executive, Box 2611W, Melbourne. The amended rules will be published in next month's "A.R.," and all applicants must be certain that it is clearly stated on their list whether the contacts are for c.w. or phone.

CERTIFICATES

Federal Executive have in hand the printing of certificates for various Contests and Awards. A new Membership Certificate is also being printed, which will be issued to all members of the W.I.A. of all grades, and endorsed accordingly. This Certificate will fill a much-needed want, and from a preview, is an attractive one that will honor the wall of any Ham's shack. The W.A.S. and DX C.C. Certificates are also off the press, and are well worth striving to obtain. Sufficient stocks of the various Certificates will be on hand to last for several years.

CONVENTION

It has been agreed to hold the 1948 Federal Convention in Melbourne on the 26th, 27th and 29th March. All members should contact their Divisional Councils with items to be included on the Agenda for the Convention, as early as possible. The due date for Agenda items to be in the hands of Federal Executive is the 14th February, so make sure you air any grouches before then.

HAMS WHO LOST THEIR LIVES DUE TO SERVICE

VK2AJB—G. C. Curle	Unknown
VK3DQ—J. D. Morris	A.M.F.
VK3HN—J McCandlish	A.M.F.
VK3IE—J. E. Mann	R.A.N
VK3NG—N. E. Gunter	M.N
VK3OR—M. D Orr	R.A.A.F.
VK3OW—G. L. Templeton	R.A.A.F.
VK3PL—J. L. Colthrup	R.A.A.F.
VK3PV—R. P. Veall	A.M.F.
VK3SF—S. W. Jones	A.M.F.
VK3UW—J. A Burrage	R.A.A.F.
VK3VE—J. E Snaddon	R.A.A.F.
VK4DR—D. Laws	A.M.F.
VK4PR—R. Allen	R.A.A.F.
VK5AF—C. A. Ives	R.A.A.F.
VK5GP—G. Phillips	A.M.F.
VK5 ?—J. Mann	R.A.N.
VK6GR—A. H. G. Rippen	R.A.N.
VK6JG—J E Goddard	R.A.A.F.
VK6KS—K. Anderson	A.M.F.
VK7LP—L. P. Hyland	A.R.P.

The above names and details have been received by Federal Executive. Anyone knowing of any name not included on the above list or errors therein should communicate with F.E. at the earliest.

MD5BU's SHORT VISIT

Early in December, just after the January issue went to press, we had a telephone call from Major Ian McAnsh MD5BU who is located in the Suez Canal Zone, Egypt. MD5BU was on his way to ZL which is his home country where his father operates under the call of ZL4IC.

Unfortunately Major Ansh had only 24 hours in Melbourne, but some very interesting information was obtained over the telephone.

MD5BU is associated with MD5KW, ex-G5KW and is operating on 50 Mc. (in fact a spot frequency of 50 Mc.), with a 4 element rotary beam, beamed on VK and ZL between 3 and 5 p.m. Melbourne time. An auto head is used to send at varying speeds between 5 and 25 w.p.m., and will reply on 28 Mc. Should anyone hear these signals, reports can be forwarded via G5BY or G6DH.

Some interesting contacts made by MD5KW on 50 Mc. are two way contacts from the Canal Zone with G5BY, PA0UN, ZS1IT and VQ3.

Some may be wondering about the MD call signs and for those unaware of their origin the following information should clear up their doubts.

The MD call signs are issued only to the British Army, to Forces' Amateur Stations only in areas occupied by the Services.

MD1—Cyrenica
MD2 Tripolitania.
MD3—Eritea.
MD4—Somaliland
MD5—Suez Canal Zone, Egypt
MD6—Irak.
MD7—Cypres.

In ZC6, Palestine, the only licenced Amateurs are those in the Forces and having the suffix J or N, others are not officially licenced.

MD5BU also operated under the call of XABU, Rhodes, Dodecanese Islands, and would very much appreciate cards from those VKs he worked and have not yet QSLied. He expects to be back in Egypt in about three months' time and will again be active as MD5BU.

CHANGES IN CALL SIGNS, ETC.

ALTERATIONS

VK2ACP—W J Zech, "Grand View," Cliff Drive, Katoomba, N.S.W.
VK2ADQ—L J Clark, 133 Burns Bay Rd., Lane Cove.
VK2AFB—F C Barron, Unit 169B, c/o. R.A.A.F P.O., Lindfield.
VK2AGI (in lieu VK3GH)—R. K. Phillips, 31 Mornben Rd., Mosman.
VK2AIS—J. F Graydon, 60 Fiddens Wharf Rd., Killara.
VK2AJC—B. J. Eve, 57 Douglas St., Stanmore.
VK2AMO—R. B. Lloyd, McBride Ave., Hunter's Hill.
VK2DJ—D. I. Johnson, Flat 9, "Glenles," 37 Glen St., Milson's Point.
VK2EF—J. F. Small, "Kobada," Terrimont Rd., Warrawee.
VK2EL—S. Bourke, 2 Coolingwood Ave., Earlwood.
VK2FZ—F. M. Stean, Lot 33, Wentworth Rd., Lakemba.
VK2GS—G. P. Edwards, 53 Denman Ave., Wiley Park.
VK2IK M. J. McDonald, Ferguson's Radio, 12 McMahon's St., Willoughby.
VK2JD—J Davis, Egerton St., Lidcombe.
VK2MJ A. J. T Crisp, 69 Silver St., Marrickville.
VK2QB (in lieu of VK2ASD)—S T Clark, 57, Jeffers St., Canterbury.
VK2UD—R. W Archer 9 Melbourne Ave Pennant Hills.
VK2UG (in lieu VK5MM)—J. H. W. White, 115 Stewart Ave., Hamilton, Newcastle.
VK2YA—R. C. Black, 29 Kurrajong St., Sutherland.
VK2YD—W S. B. Pettitt, 101 Davidson Ave., Mt Strathfield.
VK3APR (in lieu VK2AP)—A. P. Reynolds R.A.A.F. Station, Ballarat, Vic.
VK3RD—E. B. Ferguson, 171 George St., East Melbourne.
VK3DA G M Trythall, 115 Kooyong Rd., Caulfield.
VK3ED D O Jones, 247 Napier St., Nth. Essendon.
VK3HM—J Holschier, 88 Egan St., Richmond.
VK3KP—D. R. Ayre, 85 Kenmare St., Box Hill.
VK3LW—R. L. Cranch, 107 Green St Richmond.
VK3MB—R. J. Bell, Paul St., Cheltenham.
VK3MJ—R H. Cunningham, Brunrong Ave Frankston.
VK3OS—C A Rowles, 35 Charnwood Rd., East St Kilda.
VK3PO—P A Orchard, 8 The Esplanade, St. Kilda.
VK3QK—L. H Jenkins Churchill Island, via Newhaven.
VK3RO and VK3ARD—R. J Biddle, 4 Thackeray Street, North Balwyn.
VK3RQ (in lieu VK4MQ)—M. R. Quick, 600 Dryburgh St., North Melbourne.
VK3RW—R. P Wilcox 35 Faircroft Ave., Hawthorn.
VK3ZS—G. M Hull, 22 Dryden St Canterbury.
VK4WQ (in lieu VK9BW)—W H Holland c/o Mrs. S. Stewart, P.O. Box 29, Mundubbera, Queensland.
VK4GG C H. Y. Gold, 20 Curson St., Range Toowoomba.
VK4FH—J F Bull, 27 Glen Park St., Nth. Mackay.
VK4LP (in lieu VK2YQ)—L. N Page, 16 Terrace St., Paddington.
VK5AR S. D. Morris, c/o Dept Civ. Aviation Katherine, N.T.
VK5BJ J R Briggs, Jarvis St., South Plympton.
VK5BS (in lieu VK2ADR)—B. S. Clarke, "Warrandyte" Karong Ave., Mitcham, via Edwardstown.
VK5GM—A R. Anderson, 68 Canterbury Ave., Payneham South.
VK5MF—R Haskard, 194 Anzac Highway, Plympton.
VK6GJ—J M. Gibson, c/o. Station 6WA, Minding, via Wagin, W.A.
VK6WG W W Green, Pensioner Rd., Albany.
VK9YT Rev C J Zimmer, Lamasong, P.O. Kavieng, T.P.N.G.

CANCELLATIONS

VK2AGP—F. M. Leyden, 7 Albert Pde., Ashfield.
VK2AMF—F J. Carey, 85 Bridge St., Nth. Sydney.
VK2ANE—E. Sherlock, S.S. "Cheriton" c/o. Oldfield, O'Connell St., Sydney.
VK2ANL—A. B. Boyle, 39 Bligh St., Sydney.
VK2ANO—J V Hunt, 18 Oxford St Burwood.
VK2ANP—W F Brown Bundeena.
VK2DK—E. J Greene, 35 Brunswick St., Merrylands.
VK2IS—G W Lanyon, 82 Clarence St., Campsie.
VK2VO—J T Nutman, 26 Bonnefin Rd., Hunter's Hill.
VK2XH—W C H. Haynes, 10 Jarvis Ave. Petersham.
VK3ATI—C R Matheson 88 Elm Grve North Essendon.
VK3PX—J K. McCarthy, "Brentwood," 400 St Kilda Rd., Melbourne.
VK3WC C W Welsh, Flat 9, Victoria Court, Victoria Ave., Albert Park.
VK5AL—A D Lum, 39 Esmond St., Hyde Park.
VK5JJ—J C. Jennison, 4 Ross St., Black Forrest.
VK7MF—Dr K M Reilly, 174 Macquarie St., Hobart.

NEW ISSUES

VK2ADG—F Avent, 1 Dirrawan Gardens, Reid, Canberra, A.C.T.
VK2AHP—L J B. Pickett 12 Crane St Homebush N.S.W.
VK2AIM—I. M. Agar, 5 Rawson St., Rockdale.
VK2AJN J. B. Jarman, 83 Kent St., West Sydney.
VK2AJR—M. L. T Rudder, 5 Moss St., West Ryde.
VK2AMG—D. M. Finn, 68 Augustus St., Leichhardt.
VK2ARC—R. C. Godsall, Pacific Rd., Palm Beach.

VK2ART—R. Hodgins, S.S. "Echunga," c/o. Interstate Steamships Pty. Ltd., Wall St., Newcastle
VK2AWC—W. J. Cromie, 99 Oyster Bay Rd., Oyster Bay
VK2AWJ—A. W. Dever, 67 Glebe Rd., Merewether Newcastle
VK2AZO—C. H. Thornthwaite, 48 Consett St., Concord West
VK2MI—Mrs. J. A. Millen, 32 Hume St., Willoughby
VK2NA—L. R. Cameron, 24 Elizabeth St., Mayfield
VK2PG—[illegible] H. Gore, 12 Pearl St., Newtown
VK2XL—W. L. Pitts, Olive St., Seven Hills, Parramatta
VK2PY—B. Portelous, 14 Barry St., Clovelly
VK2RE—R. W. Edwards, 15 Hooker St., Hargrave Park, Le Sands.
VK2RV—[illegible] Brown, 7 Day St., Drummoyne
VK2SA—W. A. Stirling, 9 Vere St., Corowa
VK2SR—S. R. Ward, 106 Bassett St., Hurstville
VK2TS—T. G. McEwan, S.S. "Nankin," c/o. E. & A. Steamship Co., Collins St., Melbourne
VK2WM—[illegible] L. Parris, 8 Welcome St., Parkes
VK3ACH—[illegible] Cusc. Cumming Ave., Birchip
VK3ADJ—[illegible] E. Fraser, 8 Grange Ave., Canterbury
VK3AHP—E. G. Phillips, Blackadder Mains, Longwarry
VK3AGV—G. S. Vincent, 41 Skene St., Comeo.
VK3AKN—L. Kramer, Portable of VK3HN within 6[illegible] miles of Melbourne
VK3ANL—N. L. M. Chapman, Whitton St., Trafalgar
VK3AOR—[illegible] F. O'Brien, 21 Swallow St., Shepparton
VK3APF—J. Fawcett, 188 Welsford St., Shepparton
VK3AWG—[illegible] J. Grigg, 3 Philpott St., Geelong E.
VK3AQL—C. W. Harwood, "Rosebank," South Kaniva
VK3ARM—R. J. Mitchell, "Coolatoo," Serviceton North
VK3ARV—[illegible] G. Henderson, 18 Walden Ave., Burnley
VK3AWN—W. N. Newham, 258 Barker St., Castlemaine
VK3MH—E. M. Chaffer, c/o. Station 3BA, Ballarat
VK3NA—N. B. Voller, Flat 8, 9 Yarra St., Hawthorn
VK3NT—W. H. Ross, Balangeich, via Warrnambool
VK3VA—W. B. Bridges, 114 Lexton St., Ballarat
VK3VY—N. S. Smith, 11 Durham Rd., Surrey Hills
VK3ZL—R. A. Williams, 45 Banool Rd., Balwyn
VK4LS—[illegible] Clayton, Mt. Geary Rd., Nth. Bundaberg
VK4MC—[illegible] A. L. F[illegible] Raleigh St., Kalingo
VK4BJ—H. J. Champion, 9 Donaldson St., Mackay
VK4JR—J. R. Bunton, "Rose Knoll," Windsor Ave., Lilyvale.
VK4KP—N. J. Mansell, 33 Blackmore St., Windsor
VK4NC—[illegible] C. O'Brien, Jardine St., Stafford
VK4RL—R. L. Quthormsen, Thyne St., Morningside
VK5HW—A. W. H. Wright, 549 Marion Rd., Sth. Plympton
VK6FB—E. F. Brandon, 70 Gloucester St., Prospect
VK6VM—[illegible] Muller, Mitchell St., Crystal Brook
VK6WJ—W. L. John, 18 Brown St., Norwood
VK6XV—R. d'E. Murphy, 9 Lanton Cres., Woodville West
VK6SN—A. W. Sowden, 1201 Hay St., West Perth
VK6XF—W. R. Whitfield, Kojonup Rd., Katanning
VK6AK—S. W. Carter, Lewis St., Longford.
VK7DB—D. C. Brooks, 82 Albion St., Launceston
VK7LT—L. E. Templeman, 18 West Tamar Rd., Trevallyn, Launceston
VK8PK—P. W. King, Macquarie Island (Antarctic Expedition)
VK8SJ—S. J. Excell, Derwent Ave., Lindisfarne
VK9HI—A. G. Wilkes, Murray Barracks, Three Mile, Port Moresby, T.P.N.G.
VK9DS—D. A. Cameron, c/o. RTC, Lae, T.P.N.G.
VK9JP—J. F. Pert, Aerodio Station, Lae, T.P.N.G.

FEDERAL QSL BUREAU

Ray Jones, VK3RJ, Manager

An interesting QSL to hand this month is from UA3CA, the call sign of the Aero Radio Club, Moscow, and the card displays a balloon under which is the photograph of three of the operators. The wording on the card indicates that QSOs with UA3CA are made when the balloon is "In the air above Moscow."

At 2030 EST on 7th December the writer heard ZL1JM calling "CQ Melbourne." On investigation, the ZL told me he urgently desired to contact J4AAM who at the moment was QSOing VK3JW on phone. Could I get VK3JW to tell the J to listen on 14012 Kc. for c.w.? A phone call to VK3JW elicited the information that he had signed off with the J, who was now in QSO with VK3YH. VK3JW offered to and did bust in on VK3YH's frequency and passed on the message to the J4 who however could not listen on the specified frequency because of commercial interference. He however detailed a nearby J station to deputise for him and the desired contact was made within 30 minutes of the original request for QSP. Neat work by all concerned.

The Federal QSL Manager will be on annual leave from January 1 to 23 inclusive and mail during that period will be subject to some delay. The month of December, 1947, almost eclipsed the all-time record for cards handled—backwash from the VK International Contest and yours truly feels in need of the vacation. Fervent prayers for lots and lots of rain during December having been answered—50 Mc. enthusiasts please thank me—writer intends spending portion of the vacation period solo in the hills courting the elusive yellow metal and hoping to help Ben Chifley solve the dollar problem. Where? Ah, that would be telling, but far away from QSLs and CQs.

From W2CC comes the news that Marj Hutchings, ex-VK3HQ, and now of the occupation forces in Japan, became on October 22 the wife of F/Sgt. Williamson. Congrats Flight on your good fortune and to you also Marj.

Dud Charman, G6CJ, in acknowledging a private food parcel, gives an insight into some of the many problems confronting the R.S.G.B. at present. R.S.G.B. has nearly 20,000 members and assets held total £1 per member. Restrictions limit the size of the T and R Bulletin to 20 pages monthly, a brand spanking new ½ Kw. Xmitter for its HQ station is idle for the want of a house and someone to operate it! After sampling the air congestion in London for some years, Dud again appreciates the comparative quiet of Stoke Poges.

My SOS for an English translation of a Spanish letter met with a prompt and ready response from VK2VS of Canberra. Many thanks Amigo.

Writer has had the Rx on 50 Mc for many months and listens extensively on that band with the aid of a dipole and hears all that is going. The absence of c.w. on the band precludes him putting a Tx to work but the dulcet tones and windy verbosity of many of the addicts of the band provides a nice obligato to the shuffling of QSL cards when sorting

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Best wishes for 1948, is my concluding thought, to all readers and especially to my State QSL colleagues. Many thanks for your co-operation during the past year. This management of a QSL Bureau is a gripping pursuit. VK5RX has devoted approximately 16 years to it, Jimmy Corbin VK2YC the same length of time and the writer a similar period. We all still enjoy a nice card (of normal size).

Please, please, will someone tell me where to dispose of VK1 cards? It looks a little fishy to me as of all cards held for VK1 none are for contacts with English speaking countries.

NOTICE

The Magazine Committee is desirous of obtaining for publication station descriptions and a photograph of the gear suitable for reproduction.

The Committee also request all Correspondents to see that their notes are received by the Editor on or before 15th of each month. Copy arriving after this date will NOT be considered for publication.

AROUND THE DIVISIONS

NEW SOUTH WALES

Secretary.—Wal Nye (VK2XU), Box 1734, G.P.O., Sydney

Meeting Night.—Fourth Friday of each month at Science House, Corner Gloucester and Essex Streets Sydney

Divisional Sub-Editor.—R. Deal, 209 Oberon St., Coogee

Zone Correspondents: Newcastle E. J. Baker, VK2FP, 18 Skelton St., Hamilton, Newcastle, **Coalfields and Lakes.** H. Hawkins, VK2YL, 27 Comfort Ave. Cessnock, **Western.** G. J. Russell, VK2QA 4 Canonba St., Nyngan, **South Coast and Tablelands** L. H. Vale, VK2ANN, Box 73, Bega, **Southern** E. N. Arnold, VK2OJ, 673 Forrest Hill Ave., Albury

VICTORIA

Secretary.—A. B. D. Evans, VK3VQ, Box 1631W, G.P.O., Melbourne, Telephone: FJ 6997

Meeting Night.—First Wednesday of each month at the Radio School Melbourne Technical College

Zone Correspondents.—**North Western** D. R. Mann, VK3DM Chambatook, **Western** C. C. Waring, VK3XW 12 Skene St., Stawell, **South Western** H. Sextrine, VK3BI, 174 Ragian Street North, Ballarat **North Eastern** D. Tacey, VK3DW, 18 Harold St., Shepparton

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI — Sundays, 1100 hours EST 7190 Kc and 2000 hours EST 50.4 Mc. No frequency checks are available from VK2WI.

VK3WI.—Sundays, 1130 hours EST 7196 Kc. Spot frequencies every fourth Tuesday between 7000 and 7200 Kc every 10 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI Sundays, 0900 hours EST simultaneously on 7109 Kc., 14342 Kc. and 52.004 Mc. Frequency checks are given two nights weekly, and hours are announced during the Sunday broadcasts

VK5WI.—Sundays 1000 hours SAST on 7168 Kc. Frequency checks are given by VK5DW on Friday evenings on the 7 and 14 Mc. bands

From VK6WH. Sundays 0930 hours WAST on 7165 Kc. No frequency checks available.

VK7WI.—Second and Fourth Sundays at 1030 hours EST on 7174 Kc. No frequency checks are available

QUEENSLAND

Secretary.—R. Thorley, VK4RT, Box 638J, G.P.O., Brisbane.

Meeting Night. Last Friday in each month at the State Service Building, Elizabeth St., City

Divisional Sub-Editor.—H. T. MacGregor, VK4ZU, Moquet," Eildon Rd., Windsor

SOUTH AUSTRALIA

Secretary.—E. A. Harbier, VK5MD, Box 1234K, G.P.O., Adelaide.

Meeting Night.—Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor.—W. W. Parsons, VK5PS, 483 Esplanade, Henley Beach

WESTERN AUSTRALIA

Secretary.—W. E. Coxon, VK6AG, Howard St., Perth.

Meeting Night.—Second Monday in each month at the Builders' Exchange, St. George's Terrace, Perth.

Divisional Sub-Editor.—R. W. S. Hugo, VK6KW, 8 View St., Subiaco.

TASMANIA

Secretary.—J. Brown, VK7BJ, 12 Theresa St. Newtown, Telephone: W 1888.

Meeting Night.—First Wednesday of each month at the Photographic Society's Rooms, 188 Davenport st., Hobart

Divisional Sub-Editor.—W. W. Watson, VK7YY, 1st Cromwell St., Battery Point, Hobart

Northern Correspondent C. P. Wright, VK7LZ, 8 Knight St., Launceston

NEW SOUTH WALES

News from this Division has been notable by its absence during the last couple of issues of "Amateur Radio." This has been due mainly to the changes that have taken place in regard to the persons who duties of Secretary of the Division. Peter Adams has at last been relieved of the position. Wal Nye (2XU) is now N.S.W. Secretary. Don Reid (2DR) has resigned from the position of Treasurer, and Brian Anderson (2AND) has taken control of the purse. At the November meeting motions of appreciation of the good work done by Peter Adams and Don Reid were carried in the usual manner.

A Divisional Sub-Editor for "Amateur Radio" has been appointed, in the person of Russ Deal, an Associate Member who is struggling hard to get on the air. Articles, notes, etc., for publication in "A.R." are urgently wanted. It is not necessary that such articles be written in a finished style—just the rough notes will be enough. Details of modifications to ex-Service gear are of special interest at the present time, in view of the amount of gear made available by Disposals. Details of gear designed and built by Hams will also hold much interest for readers; "Personal Pars" are welcome too. So send along your contributions fellows, no matter how simple they may seem to you. The address is R. Deal, 209 Oberon St., Coogee, N.S.W., or care of the Institute box in Sydney.

A very interesting lecture was delivered at the November meeting by Maurie Brown (VK3OR, ex-G2YP) who went to England in 1945 and returned a few months ago. The subject was German radio and radar equipment, and was well supported by a large collection of tubes and gear captured from the Jerries.

Maurie pointed out that radio in the European war was largely a matter of one side developing a weapon, and the other then devising some means of defeating it. It is now common knowledge that at the outbreak of war, Germany had a radar chain, somewhat similar to that in the United Kingdom, but apparently not quite so efficient; so in the early months of hostilities, the German bomber planes used the BBC stations for position finding, thus allowing them to come in to selected points.

The British answer was to put all stations carrying the same programme on the same frequency. One control station generated a carrier with the master crystal; this frequency was then divided down by multivibrators and sent as an audio tone over telephone lines to all stations in the network, and at each station it was multiplied to the desired carrier frequency. Being thus cheated of that means of locating their targets, the Germans turned to using the Eire station, which of course didn't broadcast the BBC programmes, so a station was erected in Scotland to re-broadcast the Eire programme. One can imagine the feeling of the Caledonians at having this foreigner in their midst.

From that point on the "radio war" was a matter of constantly defeating the other fellow's apparatus and system of operation. Soon after a new British navigation and radar of such was put in use the Jerries would manage to find out its principal and develop some counter measure. The British method of overcoming this was to make some small but vital change in the gear and this is the reason for the "haywire" appearance of most British gear in comparison with American or German gear. It was a system which certainly paid dividends. Most German gear lacked that reliability, due to the widespread use of magnesium die-castings although they produced very stable and nice looking equipment. The well-looked American apparatus was did not lend itself to flexibility.

Amongst the tubes displayed were a number of magnetrons, both of the split anode and the resonant cavity types, klystrons, rectifiers, quite a few v.h.f. triodes, several interesting valves and a useful selection of receiving tubes.

The other gear on display consisted of a set of three German aircraft radio sets (a medium frequency transmitter and v.h.f. transmitter, and a receiver) a very small and neat 2-stroke petrol motor and generator outfit (very useful for field days!) and a 12 tube communications receiver. This receiver covered from 3 to 25 Mc. in five bands and consisted of several interlocking die-cast units which made it very convenient for servicing as well as making it very stable to vibration.

A feature which attracted much attention was the dial and tuning mechanism. In addition to the usual dial pointer, the calibrations of the receiver were photographically reproduced onto a glass plate about 3 inches by 2 inches. The calibrations which to the naked eye, appeared as faint scratches on the glass, were enlarged by a lamp and optical system, and appeared on a ground glass screen at the front of the receiver as lines about an eighth of an inch apart representing 10 Kc. divisions at 14 Mc. Real band spread!

This section of the receiver also incorporates an automatic tuning system in which two small motors, under the control of a 5-point switch, changed bands and tuned the set to within a few hundred cycles of the present frequencies. To set the frequencies, the operator merely tunes set by hand to the desired band and frequency, sets the 5-point switch to one of its four active positions, and pulls down a small lever. This locks the system and when the selector is again turned to that point, the motors tune the whole system to the selected frequency.

The electrical design of the set is also highly efficient, and incorporates a really effective crystal filter, two r.f. stages, and all modern cons. in general.

The talk was obviously enjoyed by all present, and a vote of thanks was carried by hearty acclamation. Maurie is to give a lecture at some future date, on television in England and the Continent, and members are looking forward to it.

A local contact was run at this meeting, the Technical Officer (John Moyle, 2JU) selected a crystal whose frequency was somewhere within the limits of 7085 Mc. but was not precisely known. The object was for each competitor to attempt to guess the exact frequency—the guesses, of course, to be accompanied by a small entrance fee. Originally it was intended that John would measure the exact frequency at the meeting, but for certain technical reasons this wasn't possible. However, the exact frequency was written on a slip of paper in a sealed envelope, and turned out to be 7076.050 Kc. 2MA guessed the frequency to be 7073 Kc. and won first prize—a bottle of scotch! Other prizes consisted of lengths of co-axial cable, crystals, and call books.

NORTH COAST AND TABLELANDS ZONE

2WC has been holidaying in Melbourne. 2DS is still awaiting completion of new home. 2PA busy rebuilding, using a folded dipole with 70 watts to 813. 2NI getting fine phone from new modulator and working plenty of DX. 2LH worked hard getting boys fixed-up for 50 Mc. Field Day, worked VK3, 5, and 7 on 50 Mc. plus permanent channel to 2AHE at Casino. 2SL is on 50 Mc. a lot, with a hot 50 Mc. rotary beam. 2ADE has chalked up VK2, 3, 5 and 7 on 50 Mc. besides plenty of DX. 2SH, after building for 50 Mc. has been resting in a brand new shack, no fish? Is heard a lot on 7 Mc.

2JK has been building for 50 Mc. too, XYL threatens to learn code. 2RK working a little DX on 14 Mc. and uses a V beam on 7 Mc. 2AGM is undecided whether to neutralise the 813 or not, 813s supply the audio. 2EA on 7 Mc. with Dacosta rig and doing fine. 2UN busy with civic duties, heard he was going on 160 Mc. with a Lifetone rig. 2ZX has hopes of operating on 50 Mc. and of bouncing over the ranges, has a 522 on the way, mainly on 7 Mc. phone. 2AFP back on 7 Mc. and would appreciate news from the gang, thanks to 2ZX for some of the above.

NEWCASTLE DISTRICT ZONE

2ZC went portable travelling de luxe with trailer, visited 2NS and has been transmitting from Katoomba. 2BZ is working narrow band f.m. on 50 Mc. 2ABA was away and missed out on the ZLs on 50 Mc.; not happy about it. 2AGD building a really super receiver and when George builds, it's really a job. 2FP still mainly on 7 Mc. phone. Still awaiting 2AFS to arrive back in good health. 2PQ working mainly on 7 Mc. phone, likewise 2AGV. 2CS is battling with man-hours, can't find enough to complete the Tx. Next month with all the holidays over, hope to hear a lot more.

COALFIELDS AND LAKES ZONE

The Zone Officer (2YL) is on holidays in Sydney so 7 Mc. is responsible for most of this. 2OC on

receiving end of some narrow band f.m. from 2BZ, Owen reckons it's fine. 2HZ has one ideal, 28 Mc. post war W.A.S. 2ADT missed on all bands, on holidays and no radio! 2PZ going to assemble some of the gear! 2KR and 2GA on 7 Mc. Most of the 50 Mc. boys got amongst the ZLs when they broke through on 50 Mc. 2XT on the special Coalfields Net each Sunday morning.

SOUTH COAST AND TABLELANDS ZONE

2GU has been heard working 2CM crossband. 2JQ has acquired a new crystal and can be heard with the Home-to-Lunch Club. 2AKE has a Type A Mark III and will go QRO (?) after many years on 2 watts. 2ALS has two receivers and two transmitters, but is still sentimental on QRP. 2TA and 2TO are mainly on 50 Mc. 2VS and 2ADI are very seldom heard these days. 2ANN ran 813 into ground trying to hear 2EO, and is trying to correct an internal short. 2DO contributed these notes in lieu of 2ANN; the former worked XE1FO on 7 Mc. phone. 2MT plays about with v.f.o.'s. A new Radio Club has started in Wollongong.

SOUTHERN ZONE

3YD (ex-2IG) and XYL visited Albury for Xmas vacation. 2APW built new rig with 807s p.p., very pleased with results; intends to put his antenna up to 40 foot. 2QD wants to shift back to Albury and says the wide open spaces don't appeal. 2OJ doing a little on 7 Mc., listening on 14 and 28 Mc. 2ANQ ready for action when aerial goes up. 3VK finished rural servicing and now grinding crystals for 3PI. Would like to hear from the Wagga gang; a few notes to 3OJ at Albury.

WESTERN ZONE

2AGT been going places and working portable. 2AOU from Cowra has a new final. 2NS playing with antenna, worked FaEO long way round on 7 Mc., contact was at 1830 hours E.A.S.T. 2WH, now known as the whispering Ham, still hopes to get the V beam going on 14 Mc. 2II playing about with new transmitter ex-disposals, has motor tuning. 2BT with fine quality, but ding converter and erecting beam for 28 Mc.

2JV returned from Sydney after motor cycle trip, saw the gang down there. 2TG has new modulator and mike, claims it is better, I have my doubts. 2ALX with 4 element on 28 Mc. getting his share, one of the finest phone signals on air. 2DQ, Broken Hill, heard on 14 Mc. phone, a change for Dud, how about some news from there for these notes. 2QA has 3 element on 28 Mc. and doublets on 3.5, 7 and 14 Mc., also cleared hum from modulator (we hope). 2LY still building for all bands. Most Mountain Hams 2LZ, 2AFO, 2PI are exclusively on v.h.f. 2HZ DX crank, 116 up post war. 2ACP on 7 and 14 Mc. now

SILENT KEYS

VK2ALD

The South Coast and Tablelands Zone of VK2 Division lost a very ardent Amateur when the Rev. R. S. Dransfield (VK2ALD) passed on. Better known to N.S.W. Amateurs as "Reg." he spent most of his time training budding Hams, and to his memory we have many Amateurs who received their initial training from Reg.

His association with the W.I.A. goes back over 20 years and he presented many lectures to the N.S.W. Division in the late twenties. Reg will be missed on 7 Mc. VK2JQ, Rev. G. A. M. Nell, conducted the service and floral tributes were received from many Amateurs throughout Australia.

VK3TM

With deep regret, and with sincere sympathy to Mrs. Buck and family, we mark the passing of VK3TM at Mooroopna Base Hospital on 3rd January, 1948.

VK7JW

It is with deep regret that we have to record the passing of Mr. "Jack" Wallace, VK7JW, who was accidentally drowned in the South Esk River at Longford while on a fishing trip.

7JW will be remembered as one of the old timers who graduated through the 80 and 200 metre bands. His help and guidance was instrumental in getting at least two of our present members licenced.

Prior to his death he was operating on the 7 Mc. band and had almost completed a new receiver with the object of working the higher frequencies.

To his wife and family we extend our deepest sympathy.

VICTORIA

The outstanding item of recent events was the annual State Convention held in Melbourne and attended by representatives of Country Zones and members, the comprehensive agenda presented for discussion being dealt with, the review of the outcome of which, will no doubt be awaited with the fullest interest.

In refusing to accept the resignation of Mr. Jim Marsland as Treasurer, Council preferred to grant leave of absence and had pleasure in granting an honorarium to Jim for his sterling services rendered to the Division in the past and also in his capacity on the Magazine Committee. Mr. Arthur Evans (3VQ) has volunteered to carry on as Hon. Treasurer in the meantime.

The Magazine Committee have been unfortunate to lose the services (temporarily, we hope) of Mr. Ken Ridgway (3CR). Ken, who has held the post of Technical Editor of "Amateur Radio" since 1942, has reluctantly been forced to resign owing to pressure of business. Mr. J. Duncan (3VZ) has been appointed to fill this important post on Amateur Radio."

At the last Council meeting a further list of applications for membership had been received and at this stage it must be noted that 80 per cent. of all licenced Amateurs in this State are members of this Division. The Federal Constitution of the Wireless Institute of Australia, 1947, as presented by Federal Executive has been accepted by Council.

The sub-committee elected to promote competition for the Gadsden and Kinnear Trophies have made recommendations to Council, and these have been further passed on for discussion at the Convention.

CENTRAL WESTERN ZONE

These notes, I am afraid, will reflect the holiday spirit of Christmas by being almost absent. To begin with everybody in the Zone has either been away on holidays or been too busy with harvesting or shop work to engage in our most important [illegible] hamming. At least two visitors passed through the Zone over Christmas, 4GE of Burrumbuttock, and 3DI of Leongatha. Roy was enroute with family to Portland for a well-earned rest after harvest. Jim was caravaning (I think) round the State his modified FS6 certainly puts out a signal on 3.5 and 7 Mc.

Yo scribe was disappointed when 3VL and 3US failed to materialise prior to Christmas as I was looking forward to a 50 Mc. check, however I have since actually heard a 50 Mc. signal (S8) but still don't know who it was (please blokes don't run your carriers without a signature). 3FI is

using a QRP rig at present and, big blokes permitting, puts out a nice signal. 3ATR (Warracknabeal, would be dead without you Trev) is busy getting a good harvest in, and only has a quick peep over the week-end.

3AX is on holidays until about the end of this month. 3ARW, who has just about the right pitched voice to go through the QRM, is looking forward to his holidays when Harold comes back. Bill hopes to be down in "Smoky Hollow" for the State Convention. 3EP has just come back from a vacation, cramped somewhat by Melbourne's peculiar transport system. 3GN, like the writer, had to put all radio projects to one side and attend to such things as earning sufficient £ s. d. to keep body and soul together did you have to pay your income tax too George? I did. 3YW, after pucking up enough courage to rob a couple of banks to pay the aforesaid income tax, finally managed to tame the 50 Mc. rig and is all set on the putting out idea, but not so hot on the pulling in. The Zone hook-up is on 7050 Kc., second Sunday in month at 10 p.m.

NORTH-EASTERN ZONE

50 Mc activity in the N.E. Zone is increasing. 3DW is now active on this band and in 100 per cent. contact with 3UI at Tatura, 12 miles distance. Maximum plus phone signals both ways at all times, both stations use 3 element beams. 3FF visited 3TS at Gorop, these ads being active with portable gear and working 3ABG, 3UI, 3GD and ZL. 3KR has transmitter working and received RST 449 from 3UI on a scheduled c.w. transmission.

On Sunday, 4th January, 3UI arrived at 3DW, car loaded with 50 Mc. gear. Portable and mobile tests were carried out over various distances, and each proved their worth on the receiving side. Good contact was maintained throughout the tests, the maximum range for the purpose being three miles which included open and town conditions.

EASTERN ZONE

The Eastern Zone will be holding its first post-war Convention at Maffra on the 14th and 15th of February. Zone activities are strong around this area and the local Hams are working hard to make this the best Convention ever. Arrangements have been made for accommodation at the local hostelries.

A dinner will be held on the Saturday evening. This will be followed by a Zone meeting for election of office-bearers and to arrange a programme of activities for the coming year.

The Bush Fire section is active and will be [illegible] agenda. All Hams will be very welcome and the Zone hopes that members will make a special effort to come along. Final arrangements have not yet been made for the Sunday, but it is hoped that some Melbourne Hams will make the trip, bringing some of their portable 50 Mc. gear. A field day will be arranged and combined with a trip to a local scenic centre.

Would anyone who expects to attend please notify the acting secretary Graham Cosgrey (VK3QZ) [illegible] Tears gon. Bed and breakfast will cost about 8/- a head. Other details not yet known, but together with arrangements for transport will be advertised over VK3WI. It is going to be a big week-end in lovely Gippsland, so be in on it fellows.

QUEENSLAND

The annual Xmas Party of the Queensland Division was held at the Trades Hall on Thursday, the 18th December, some thirty odd members attending. Rag chewing was the order of the evening, and we believe that a good time was had by all, although things looked a bit grim at first owing to a complete lack of bottle and keg openers, Mr Andrews, of the R.I. Department found time to come along a little later on in the evening, and another visitor was Mr. L. Gould. Activity has not been at a very high ebb during the past month, both amongst individual members and also amongst Council, a state of affairs also reflected in the VK4WI hook-ups, the roll call for the last few weeks being shorter than usual.

The 596 type of transmitter has come to hand, and also the Class C Wavemeters, distribution of both types being well under way. It is hoped to publish a description of the conversion of the 596 type of transmitter in the near future, so anyone without "Gen" books might be well advised to wait until the article by VK4FN appears in print.

In connection with Disposals gear it is not out of place to remind members, particularly those in the country of the debt they owe to the Disposals Committee and in particular to Secretary VK4RT who has given an untold amount of time to the purchase and despatch of this gear.

The first in a series of lectures on Antennae was presented at the December general meeting, the first instalment being given by Mr. P. Kelly, VK4KB, who dealt with fundamentals. As a result of this talk most of those present at the meeting went home and spent a good deal of time looking at the height of their aerials and also at the ground beneath, the nature of the ground beneath a radiator being a point dealt with by the lecturer at some length, a comparison being drawn between the Ham who mistakenly selects a site on top of a mountain as being ideal for DX work (neglecting the type of soil beneath the super-duper array), and the "know-how" commercial people who carefully select some spot or other either at the bottom of Sleepy Hollow (where the ground is invariably moist), or on the seashore.

The second in the series will probably be a continuation of the first lecture, after which it is hoped that a lecture on "Practical Applications" will be given by VK4XG.

The Food for Britain Appeal has languished a little of late, we hope, to the diversion of shekels to Xmas gift buying, but in order to give the movement new life it is proposed to raffle a few items of unusable equipment. So don't forget to patronise the next few meetings, you may succeed in drawing something out of the lucky dip.

Nominations for the position of VK4 Delegate to the Federal Convention to be held next Easter were called for at the last general meeting, VK4FN, VK4HR and VK4ZU being nominated, the position going to VK4HR, or in the event of his being unable to attend, one of the other nominees would fill the vacancy.

Zone notes are conspicuous by their absence these days, which is rather a bad show as your scribe now finds himself bereft of news. What say OMs? Surely we have some news to report, and what's happened to that dope you were going to send down re 807's Harry VK4KW?

SOUTH AUSTRALIA

CHAIRMAN'S REPORT PRESENTED TO THE ANNUAL MEETING OF STH. AUS. DIVISION

Gentlemen.—Another Annual General Meeting ought has come around, and with it the duty devolves upon me as President, to present a summary of the progress of the South Australian Division of the Wireless Institute of Australia. I think that all will agree that the preceding eighteen months have shown a progress such as even the most optimistic member would not have ventured to predict at the last Annual General Meeting. We now find the Institute with the largest membership this Division has ever recorded namely 400 members.

The Amateur Bands have been restored for the use of members practically the same as were in use prior to 1939. The Regulations have been lifted to a large degree and power input increased to 100 watts, with the removal of that contentious Regulation, the A and B Class Licence; all this has been accomplished by the combined efforts of the various Divisions in each State through the governing body of Amateur Radio in Australia, the Federal Executive of the Wireless Institute.

The monthly meetings have provided a series of lectures which in my opinion, have been of such a standard as this Division has seldom equalled and I think never excelled from the point of view of the subjects dealt with and the manner in which these lectures have been presented by the various lecturers concerned, to whom our thanks are due. We had the misfortune during this year to lose the services of Mr. Ivor Thomas (VK5IT) as President, owing to business and other reasons and it should be noted that his work was a determining factor in the re-establishment of the South Australian Division in the post war period. His work in connection with Disposals Gear will be gratefully remembered by all concerned.

It will be noted from a perusal of the balance sheet sent to all full members that the Treasurer has handled over £900 and although this covers a period of eighteen months it has meant an increase of three times the amount handled by him in the previous period 1945-46. The amount of work involved has greatly increased the time that the Treasurer and the Secretary have had to devote to Institute business and members would do well to reflect on the way Mr. Raseby and Mr. Barbier have carried out their arduous duties.

The membership of the Council has been varied to some extent from those elected in 1946 owing to resignations on account of pressure of business and other reasons but the new members co-opted have proved that they have the best interests of the Division at heart, and with the original members have performed their duties in such a way that the Council functions as a most efficient body in transacting the affairs of this Division. To those members of the Council who resigned during the year we tender our thanks for the work done.

A.O.C.P. CLASSES. Two series of classes have been held for Institute members, the first under Mr. Allan Lum as Theory Instructor and Mr. H. Roberts as Morse Code Instructor. The Class at present is in the very capable hands of Mr John Allan (5UL) and the Code is being taught by that well known ex-P.M.G. Operator, Mr. A. Sheard.

TECHNICAL COMMITTEE.—Although this Committee is still in existence for the guidance of the younger member, little use has been made of the service offered.

TRADE.—The privileges extended to members of this Division by the Radio Trade in South Australia continues to exist for financial members of the Division and the discounts offered are one of the big advantages of membership, in many cases more than paying for the subscription to the Institute, our thanks are due to the Trade for this continued concession.

LECTURERS.—We have been indebted during the period under review to the following for having provided lectures or other interest at our monthly meetings. Messrs. A. C. Smythe (MF), Roy Bucketfield (5DA), Ted Crawthorne, John Allan (5UL), Pete Bowman (5FM), Bob Manuel, (5RT), Cliff Moule (Grads. P.M.G. Dept.), Ted McGrath (5MQ), Gordon Bowen (5NL), Frank Wreford (5DW), Murray Higgins (5QM), S.A. Illuminating Society (Pro. Sgt. Kerr Grant) and the P.M.G.'s. Dept. and A.B.C. for use of equipment.

TROPHIES AND DONATIONS.—Trophies were received from the Trade and Broadcasting Stations for the Field Day and to the various donors we express our gratitude.

EXPERIMENTAL ADVISORY COMMITTEE. This Committee functions under the Chairmanship of one of our local Radio Inspectors and consists of five Institute members and one non-member. It is to be noted that the general operating procedure, transmissions and behaviour of South Australian Stations during the last eighteen months, has brought favorable comment from the R.I.'s. Dept.

IONOSPHERIC PREDICTIONS.—Interpreted by Mr. J. In Allan (5UL) from charts supplied by the C.S.I.R. of Sydney. Predictions have been broadcast from the official station VK5WI at intervals, this information is appreciated by members and the thanks of the Council are tendered to Mr. Allan for this service.

OFFICIAL STATION VK5WI.—During the year the Institute obtained an Experimental Licence for official W.I.A. broadcasts in this State. This work was kindly undertaken by Mr. Reg Harris (5RR), assisted by Mr. J. McAllister. While primarily of interest to country members, the manner in which Mr. Harris "puts over" the matter to be dealt with was and listening to the Sunday morning news, a 'must' for both city and country members and performs a valuable work in holding the membership together. The very grateful thanks of the Council are extended to Mr. Reg Harris.

CONSTITUTION.—The matter of the Constitution has been delayed owing to the fact that the 1947 Convention decided that it was desirable for all States to adopt a Uniform Constitution. Federal Executive are working on this project and because of the varied Constitutions in the Divisions some time must elapse before these can be mutually agreed upon.

MAGAZINE.—The official organ, "Amateur Radio," is posted monthly to all financial members and I think that high praise is due to that energetic band of enthusiasts who produce it with no thought of personal gain. Letters from the Editor and others have stressed the urgent need for good technical articles and members are again asked to support this appeal, after all it is your Magazine and deserves the support of every member of the Institute. In this connection the work of the VK5 Sub-Editor, Mr. Warwick Parsons is acknowledged to be one of the outstanding features in the Divisional notes from month to month, his recent article of "Ten Metres" was a gem of satire and castigation to those members of this Division who frequent that band.

FEDERAL EXECUTIVE.—The Council of this Division desires to express their appreciation for the splendid achievements attained on our behalf and pledges the active support of this Division in the future.

CONVENTION.—In company with the Delegate from South Australia I was present at the 1947 Convention as Observer and had the opportunity of witnessing the tremendous amount of detailed work involved in the conduct of Federal Executive's efforts on behalf of all the Divisions. Members perhaps do not realise the amount of time and energy voluntarily sacrificed by these men for the advancement of Amateur Radio in Australia. Our thanks are due to Mr. Barbier as Delegate and Federal Councillor, a position which he has filled for some years. He has already reported to the Division on the deliberations at the 1947 Convention and it is not necessary for me to enlarge on this subject.

INSTRUMENT LIBRARY AND FREQUENCY METER. Funds have been allocated for the purchase, at some later date of equipment to be made available to members, for electrical measurements, etc. and in this connection a Bendix Frequency Meter now the property of the South Australian Division is in the capable hands of Mr. Frank Wreford (5DW) as custodian and frequency checking officer for this Division. Many checks have been given over the air and meters have been calibrated. This service has been much appreciated by members and the time and trouble expended by Mr. Wreford is much appreciated.

GENERAL.—The Institute regrets the loss of Mr. W. Brett (5WB) whose untimely death ended the career of a very promising Amateur.

The co-operation of the Radio Inspectors' Branch of the P.M.G's. Department has been to our mutual

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H.F.P

advantage and to those officers of the R.I.'s Department who are in close contact with us we extend our thanks for the very understanding way the Regulations have been administered.

There is one point that I think needs some adverse comment and that is that no nominations for Council were received from the general membership, although I appreciate this as a compliment to the work of the present Council, I feel that new blood is a necessity for the continued well-being of the Division. It must be realised that the present Executives cannot continue indefinitely and we should have some of the younger members in a position to shoulder the burden. I urge you therefore to offer your services to the Division, so that the increased work may be spread over a greater number of helpers and so lighten the load now carried by a few.

The work of the Council during the last year has been very great and the efforts of all concerned have achieved the position that this Division now stands; this has been accomplished by team work but it is especially to be noted that without the really strenuous performances by the Secretary and Treasurer we would have found ourselves in a much less favorable position and we should congratulate ourselves on having two such enthusiasts in these positions. The work involved would be greatly lessened by the co-operation of members in the matter of prompt attention to accounts rendered. Laxity in payment of subscriptions and in attention to notices, means that additional correspondence greatly adds to the work of the Secretary and Treasurer. Non-financial members are a liability on the financial member and in future the Council has decided to withdraw all privileges until arrears have been met. I thank you for your support during the year and ask for its continuance in the future. —H. L. AUSTIN (5AW), President.

SOUTH AUSTRALIAN NOTES

"Full many a flower is born to blush unseen,
And waste its sweetness on the desert air."

The above sweet words were running through my head as I idly turned the pages of the week-end paper, the "Mail," and was met with the photograph of two of our most modest Hams to wit, Ralph ("seek you") Turner (5TR) and Ross (Bachelor of Radio Engineering) Kelly (5WL). In the aforementioned photo these two shrinking violets may be seen working duplex, one on phone and the other on c.w. Some duplex ess you! Ralph, according to the "heifer dust" printed under the said photo works South Americans just like you and I work locals, and these South Americans say to him "Ullo Ralph Amigo, I am so please to speaka with you once more, you are coming in ver' clear, when you come to Colombia hey? Don't you ever have the—er—holiday?" Ralph has one of the most powerful transmitters in Adelaide, one hundred and one watts we presume, and Ross has a powerful but small transmitter of the type used by the underground fighters in Europe. "You great big hunk of Guerrilla you!" Great work fellas. "You sure tossa da bull." Sorry boys, but you did stick your necks out didn't you?

I have been forced to "fire" my correspondent from the Unley district as he forwarded to me the following paragraph, which even I could not believe. I quote: "A large and infuriated mob of what turned out to be Radio Amateurs advanced on the residence of Mr. Ross Harris (5FL, Disposals Manager for South Australia) in the early evening of Monday, January 12. Mr. Harris met them at the front verandah and misunderstanding the purpose of their call, commenced a bright and entertaining lecture on 'Operating Procedure as applied to Ham Radio.' He was greeted with cat-calls, hisses, etc., and the angry mob began pelting him with tubes, condensers and other small radio parts. The hurried arrival of Mr. Cec. Baseby (5BZ) waving several unpaid account forms from the W.I.A. caused a number of the mob to leave very smartly but the remainder kept repeating in a monotonous chant, 'We want disposals gear, we want disposals gear.' Mr. Harris realising the position then stepped forward and gave full particulars regarding the disposals position which appeared to satisfy the mob who began to disperse. Mr. Harris, when questioned, said that he was unaware of the apparent high interest regarding disposals gear, but he would endeavour to expedite matters immediately. He said in closing that he wished that the mob had been a little angrier because they then might have pelted him with a few power trannys as he was short of a good tranny." Unquote. Now did I do the right thing to "fire" my Unley correspondent?

Heard a VK5 Ham, apparently with a hide like an alligator, say over the air to another Ham, "You can QSL via the W.I.A., it will be OK, I am not yet a member but I suppose I will join up one day." Wouldn't it!

Ross Harris (5FL) after mature consideration has consented to remain a co-opted Council member. I heard that it took three bars of full cream chocolate plus four chocolate frogs to convince him, and if so I am going to be a little "coy" next Council elections. "Frits" is my weakness, beef fritz in particular. ("Frits" dear Editor, is a form of sausage.)

It is with regret that Council members endorsed the resignation from membership of Jack Strafford (5JS). Jack is held in high esteem in VK5, both as an individual and an amateur, and it is to be regretted that he goes around with that little chip on his shoulder waiting for someone to knock it off. I personally class Jack as one of my best friends and assure him that anything that may have influenced his decision to resign, definitely did not come under discussion or originate in Council. What about it Jack? This is your column as well as anybody else's, and I welcome chances to fight "lost causes."

I notice that a cuckoo has crept into my nest. I refer to the addition in my last monthly notes. It could be that bounder Barbier, the cad, but I will suspend judgment until my bloodhounds return as they are "aroamin and ahoagin" around the countryside, get it! The cuckoo has been busy again (why don't you listen on 7 Mc.—Ed.) and from that little bird tells the story of 5PS, complete with ballet skirt, wines, etc., giving an exhibition of the "Dying Swan." 'Tis rumoured that some people almost died on the spot at the sight. It is understood that the floor was specially re-inforced for the occasion.

28 Mc. is fast filling up in VK5 and new calls are appearing daily, so much so that I am having great difficulty in covering all angles. I notice "mum," "biscuit and tea drinking," etc., are conspicuous by their absence and an occasional report on signals can be heard.

The Xmas Social as well as the December general meeting, both usually supplying a big budget of news, must be tossed aside on account of being "stale" due to the early printing of the January issue. Apparently everybody thoroughly enjoyed themselves at the social, the highlights of which were Dougall Whitburn's (5BY) flights of oratory in welcoming the visitors, Professor Sir Kerr Grant's informal lecture on "Heavy Water" and the autographing of the 5WI QSL card by all present and later presenting it to G5UB who was a welcome visitor. Regarding the general meeting it was just another general meeting, many of the boys with "grouches," legitimate and otherwise came along like lions but left like lambs, and I feel sure that should someone one day stand up and genuinely "grizzle" about something, all the members of the Council would collapse from heart failure. The general meeting is the place to voice complaints and not on the footpath after the meeting. So get on your feet chaps and have a go, you might be surprised to find out how many are behind you but lack courage to rise to their feet.

The January meeting was a huge success when Dr. Adey (5AJ) lectured on "Radio and Medicine." Unfortunately, the closing date for these notes is January 15 and the meeting was held on January 18, which means I cannot fully cover the lecture in the time allowed. (Editor please note!) Phew! I got out of that one real well. Among the visitors were Messrs. Crowley, Simons, Kelly and Lane. Active visiting Hams included Messrs. Kerr (5AJK), Carroll (ZL1HL), Reeves (5KR) Walker (5PX) and Burgess (5GC). Mrs. Adey, the XYL of the lecturer was also present in the capacity of "guinea pig" and a very charming "guinea pig" if I may be permitted to say so. Mr. Murray Higgins (5QM) proposed a vote of thanks to the lecturer, which was received with acclamation. In closing might I say that in the opinion of the gathering the lecture was one of the best delivered to the W.I.A.

The question of unfinancial members and their loss of privileges (QSL cards, Magazine, etc.) was aired by Warwick Parsons (5PS) at the monthly general meeting and Doc Barbier (5MD) addressed the meeting in regard to this matter. He pointed out both sides of the question and stressed the fact that provision has been made whereby any unfinancial member may be carried over until circumstances permit the payment of subscriptions. This applies of course to genuine cases of hardship and not to imaginary ones, whereby a member pleads shortness of cash for the Institute, but next week manages to buy an expensive receiver, or microphone for himself. Nobody should be embarrassed because of financial difficulties as there are few among us who have not at some time or other experienced the same difficulty. Don't hesitate chaps to write the Hon. Secretary, state your case and you will be agreeably surprised at the results. For heaven's sake don't ignore your unpaid account and then "wingo" and "howl" over the loss of privileges. After all you get plenty of warnings and you cannot expect one half of the members to pay and carry the other half on their back.

I received a short note from a country Ham giving me details of the activities of himself and several other Hams and I put it away so carefully to use in this month's notes, and now that I want it I cannot find it. I think it came from L. E. Catford (5LC) and if so please accept my apologies for misplacing it. Should you or any other country Ham be kind enough to forward me any notes in the future I assure you it will not occur again. Is my face red!

The A.O.P.C. classes are finding it extremely difficult to secure a suitable room for the newly formed class which will begin sometime in February. Any member who can suggest suitable rooms please contact the Hon. Secretary Doc. Barbier (5MD), but don't make the rent too high.

NORTHERN TERRITORY NOTES

Activity by most of the chaps in this area is quiet. 5AE and 5KL being main two to keep Darwin on the map. Dare has forsaken his portable rig for one more substantial, and has good quality phone using a dynamic type microphone, and is active on 28 Mc.

Noel, 5NR, made a sudden return to the air using 6V6 and 807 rig with 15 watts input. Uses a half wave dipole, co-axial fed, and raises the Ga OK. YL still occupies whole of his time.

5AB now at Katherine and operating on 14 Mc. using a 6V6 tritet and 807 p.a. 5QV now inactive and sold out his gear. 5SA is off the air at the moment.

Two VK5s were stationed here for a few weeks before Xmas in persons of Ray Bennett (5RC) and Jack Coulter (5JD). Many tales will be spun of untold DX heard and worked whilst in Darwin.

All extend, to those who participated in the VK-ZL contacts on 50 Mc., congratulations and well done. 5KL is having modulator trouble but is keeping aked on 50 Mc. with European and W stations on c.w. Nil was heard here on 50 Mc. during break-through to ZL. 5AY is believed to be rebuilding.

WESTERN AUSTRALIA

The first meeting for the New Year was held on the 12th of January. An interesting evening was spent, the main feature being the postponed talk by 6AG. Wally kept everyone attentive by the interesting manner of "40 Years in 40 Minutes."

The other feature was a collection of 50 Mc. gear brought along by various VK6s.

The Annual Meeting will be held in February instead of January as previously. This arrangement is in accordance with Federal Council wishes to have all Divisions' Financial Year ending at the same time, so that a full report can be rendered at the Easter Convention.

A limited number of Class C Wavemeters have been procured by this Division from VK4, and Members will be advised as to the price, etc., through the local Bulletin. The SCR522s are now on their way, and should be arriving shortly.

PERSONALITIES

During 6FL's Christmas holidays the beam was duly "played with." Added were extra reflectors, and we are waiting to hear the results. 6JB is now back on the air. Heard on 7 Mc. with quite an f.b. phone signal. Welcome back Alan. 6WS is now W.A.C. and Skipper is quite proud of his rig. Just waiting for his Certificate to make things 100 per cent. 6KW said some nasty things when his beam motor kept on revolving when it was turned off. Ask Ron what happens to co-ax cable when stretched and stretched.

6WT has been a busy Ham lately, working DX on 7 Mc. c.w. 6SN is a new Ham with quite a nice signal. Alf is heard disturbing the ether on both 14 and 7 Mc. phone and c.w. 6BW is a little more active lately. Seems to have settled down in VK6 again, after a lot of interstate wandering. 6AG has now erected (with the help of the Council members) a new 50 foot mast. A real mast following Wally's recent miniature demonstration was placed in position up in Darlington, a couple of Sundays ago, when the Council went up to have a meeting. It looks really f.b.

6DX has been working some really f.b. DX on 7 Mc. lately, including W on phone and c.w. 6MX another new call owned by Milo, an ex-W6. Good DX o.m. from VK6. 6RU has had the distinction of mention from the "formidable" "Gremlin." We believe Jim has, as usual, answered the b.c.l. report. 6KE is another new v.f.o. aspirant. Keith has now his new Bendix unit working, and is heard working in on the DX. 6MB has been busy building a v.f.o. We wish you luck o.m. and hope it works.

6RO has erected a new 28 Mc. vertical antenna. Reckons he will at least listen to the DX, even if he can't work it. 6EL comes up on 7 Mc. occasionally from the DX bands to work the locals. Puts in quite a good signal in Perth. 6PW has quite a f.b. rotary beam working down in our Port. Intends to give the Perth lads a run for the DX. 6FR is believed to have had an exciting time when his exciter went up in smoke. The result is a complete new exciter unit. It's an "ill wind" Fred o.m.

6OH is busy building a rotary beam for 28 and 14 Mc. Seen dashing round the timber yards looking for Oregon pine. More QRM for Mosman Park. 6WH was heard using a 5 watt portable from his home QTH. It sounded OK too, Ted. 6DF just about completed his new 50 Mc. rig for a.m. and f.m. Look out for some DX records soon on this band.

TASMANIA

North and South notes look like overlapping somewhat this month as a result of a long Sub-Editorial stay in the North and North-west. Our main intentions were to do with laying in the gun and wocking the world with a Type A Mk. III, but a couple of evenings completely satisfied the urge to battle through on 7 Mc. with five watts, and spare time was very profitably diverted to visiting the northern gang.

These chaps are really 'going' places on 50 Mc. 7XL and 7AB particularly, who were working VK5 and ZL as though they were just across town. A simple type of three element rotary is used in both cases, consisting of conduit elements mounted directly on a wooden pole and fed by co-axial cable. Also visited were 7BQ, 7LZ and 7GD in Launceston. The talk—fortunately—wanders sometimes away from radio on occasions like these but, if the kind of friendliness we encountered is to be called Ham Spirit, there is room for a few million more people in this game.

Now, as a further result of our being away from Hobart, the account of this month's meeting is to be culled from brief notes. This job is approached with some trepidation, since a similar attempt to work up some readable copy recently trod (it has been heard indirectly) on the toes of a reader who apparently brings an unduly earnest frame of mind to reading this stuff. He's quite a good bloke, really, but if he feels that this points him out in unsuitable fashion, it serves him right for not restricting his remarks to the right quarter. The moral, brethren, is this: Never complain about people stealing your thunder; it is the essence of obscurity. Like some of these notes.

There were thirty-one present at the meeting, including visitors in the shape of Mr. and Mrs. J. Batchelor (7JB and 7YL) and Mr. H. Cullendar of Victoria.

Our old friend of three field days' duration, Frank Miles, has become an Associate Member, and the dinner committee once more consists of 7RF, 7CT and 7CW. At last it shall if 7CT doesn't desert in Auckland where he is at present headed aboard "Kurrewa III." Terry, by the way, expects to be operating 7CT Mobile while aboard the yacht which is a competitor in the Auckland-Sydney race.

The Food for Britain Appeal has gone ahead by another £5, in addition to the donation of an FSO power supply by 7KA, to be raffled at a shilling a ticket.

7KA is leaving us shortly for VK3, and in farewelling him we also congratulate the Victorians in acquiring a good chap.

Proceedings ended with a lecture by 7JB, dealing with a modern radio-communication system.

Early in December a gathering of some fifteen Hobart Hams was held at the home of our G.O.M. "Pop" Medhurst, who seems to take a new lease of life every time someone mentions radio. It's time we heard that mellow fist again, Pop—how about it?

NORTHERN ZONE

The strength of this Zone is gradually increasing and with 7DB now active the number of stations on the air in the near vicinity of Launceston is now eight. Visitors to the Zone this month included G5UB, VK3OJ, VK2ANL and VK7PA, and our various members co-operated to the best of their ability entertaining their guests.

Although we cannot show much in the way of equipment to visitors, I feel quite safe in saying that all these Hams enjoyed their personal contacts with our various members. What with talking about old times to 3OJ and 7PA, working DX for 2ANL and showing G5UB the sights, our time was fully occupied.

Station activity this month is as follows:—7GD and 7DB are both working 7 Mc. phone at present and both these stations appear to be getting out quite well. 7CL is also getting a few QSOs in whilst the school holidays are on. 7BQ is still keeping up with his skeds on 7 Mc. and also keeping a check on 50 Mc. Len has worked VK2, 3, 4 and 7 on the latter band.

7DS has been heard on 3.5, 7 and 14 Mc. Hugh must be looking for a lost kilocycle or something. 7BK spent the Xmas vacation rebuilding and is now back on 14 Mc. chasing bigger and better DX. 7LZ is that dashed busy writing letters, notes and QSLs and finding out what everyone else is doing that he hasn't had time to do anything else.

CORRESPONDENCE

DISPOSALS

Editor, "A.R."

From letters and by listening round the bands, it is obvious that many inaccurate rumours are circulating regarding Disposals matters in general and the VK3 Disposals Committee in particular.

Several Amateurs have been very noticeable; some not even being W.I.A. members. For some obscure reasons of their own they are spreading stupid, mischievous and even malicious rumours that are entirely unfounded. Such an anti-W.I.A. attitude can only result in harm to all Amateurs, who all owe the conditions they now enjoy largely to W.I.A. efforts on their behalf.

All official W.I.A. news concerning Disposals will only be promulgated by sending official correspondence to the Division or Divisions concerned who will in turn pass it on to their members, at general meetings, by circular or by broadcast over official Divisional Stations. For obvious reasons, detailed information concerning quantities, prices, availability, etc., cannot be given in these columns or "over the air."

We ask all members to help us and themselves by avoiding all mention of these aspects on the air and referring only to purely technical details. Do not repeat any rumours you may hear and do all you can to stop them spreading.

We realise that most members would like much detailed information and we would like to be able to reply to all individual requests, but as the work of obtaining, storing, sorting and distributing the gear is taking all the spare time of those members concerned, this is impossible. Therefore if your letter has not been answered, do not assume that we have just ignored it. When you receive any circulars, read them carefully and do exactly as requested and so help us to get the gear to you as quickly as possible.

We ask you all to realise that our sole object is to obtain, for W.I.A. members, this gear in which we believe they have an equity, in good condition and at prices to suit the average Ham's pocket.

We are well aware that many members have no direct access to other Disposals sources and we are trying to help them as much as possible. If you hear of "bargains" and our prices being compared unfavourably, we ask you to make certain that the condition of our gear compares equally unfavourably before you buy.

But, for reasons beyond our control, we cannot achieve results as quickly as we would like, so we ask you to be patient while we are doing our best to satisfy your wishes.

We trust that this rather lengthy letter has now cleared the air satisfactorily on Disposals matters.

Yours faithfully,

DISPOSALS COMMITTEE,
Victorian Division, W.I.A.

WHY SIMPLER ARTICLES?

1 Byron St., Box Hill, E.11

Editor, "A.R.," Sir,

What's the strength of these pleas for simpler articles? After all "A.R." is presumably published in the first instance for Amateurs and the fact that a person is an Amateur presupposes that he has passed a technical examination. (If he hasn't, I shouldn't think he'd be game to advertise the fact.) In other words he's supposed to be starting off with a working knowledge of the fundamentals of what the Ws call "the electron art."

It seems to me, then, that the majority of "A.R.'s" readers should be more interested in making a forward step in their knowledge than in re-reading the subjects they had to know to get their tickets. Anyway, my experience has been that the chap with little or no knowledge of the theory behind the job he's on generally makes a hash of it.

If you don't know why a piece of equipment works, how the —— are you going to find out what's wrong when it ceases to function? And a knowledge of the why and wherefore behind the construction of radio gear helps when you have to substitute pieces you have got for pieces you haven't. Many of these fundamental fiends, if they haven't got a 0.5 uF. condenser, put in a 0.05 or just leave it out altogether, when a little thought and understanding would show them whether the value was critical, and what they could do about it.

Anyway, there are plenty of layman publications about that provide simple articles for the man who wants to be spoon fed. Mind, I'm not suggesting that "A.R." become a poor man's "Electronics" or an I.R.E. Journal, but I do think that we could all move back from the fire and make room for the folks that want to warm their theoretical knowledge. In other words, let's have all kinds of articles on all kinds of subjects so that all can find something interesting and instructive for their six bob a year.

In conclusion I would suggest that VK3GE (and other) have a look at QST for August, 1947, and read W2RYI's article on TVI. It is a good example of how theoretical considerations can lead to a solution of a problem. And who could suggest that an Amateur magazine should not publish such a useful contribution to Amateur knowledge?

Yours truly,

F. C. JOHNSTON, VK3KL.

SUGGESTIONS

Box 342 P.O., Narracoorte, S.A.

Editor, "A.R.," Sir,

I have, for quite some months now, been going to write to you and offer some suggestions, etc., on what in my humble opinion would improve our magazine. However to be quite frank I've been too lazy to do so and it was only after looking through the December, 1947, issue and seeing Geo. Every's article that I felt the time had arrived for this letter. I most heartily agree with 3GE's letter and might add that I hope we hear more from his pen!

Like him I don't belittle the efforts of the chaps who contribute the articles but for at least 85 per cent. of us Hams, I'm quite safe in saying that we DON'T read the articles at all! They're too boring for one thing and for another most of the articles are far too technical for the majority of us (including myself, I must confess!). For the technically inclined excellent overseas books are available at small cost and more often than not include the practical as well as the theory.

I like to open up the mag. and get at the practical side at once and start out duplicating the article. Who, I ask you, wants to wade through pages of algebrae equations, etc., and wind up wondering what's it all about?

Cannot the Magazine Committee get city Hams (if not country) to contribute articles on gear, antennae, station lay-outs and what not. If the Hams themselves WILL NOT send in articles (I agree Mr. Editor that most of us are too d—— lazy to send in articles and I'm no better than most), what's wrong with having a paid Ham visit shacks and GET the dope himself! Surely the W.I.A. funds will now run to that? Anyhow I think something could be worked out on those lines.

Also more dope from the T.A.C. on ANYTHING they do. Although unfortunately, I haven't a Type 3 Mk. II, I think their article on same was very f.b. indeed and, I for one, certainly hope to hear more from them.

As I am a migrating apiarist (bee-keeper) by trade, I haven't had time to really settle down as yet since the war, but I'll be permanent at my QTH by this coming winter, and will send in any dope etc., I have on my rig, receiver, antenna, etc., but as a suggestion on the mag., why not cut it to pre-war size. In my opinion that's the best size for our mag. What do you think? Also what's wrong with a VK Hints and Kinks Section, similar to QST? I think a section could be worked up OK. If the boys won't send suggestions, pay a man to get 'em around the city if at all practical. I think the idea would click OK once the ball started to roll.

There's only one thing wrong with the "Gremlin" articles, and that is his page is NOT big enough. If he really wanted to he could fill a page quite easy each month but maybe he hasn't the time to spare. Anyhow he is doing a very good job. If I put out crook sigs I hope he hears me AND lets me know too!

Now this letter of mine is, I know, all moans and not much suggestion, Mr. Editor, but if it only starts someone thinking, I'll be quite happy. I'm a great believer in the W.I.A. and have been an active member since 1932. If this ever gets into print I guess my ears will burn, but my shoulders are broad and I can TAKE IT! Having said my piece, I will down my pen.

Yours sincerely,

WALLIE BURFORD, VK5PB.

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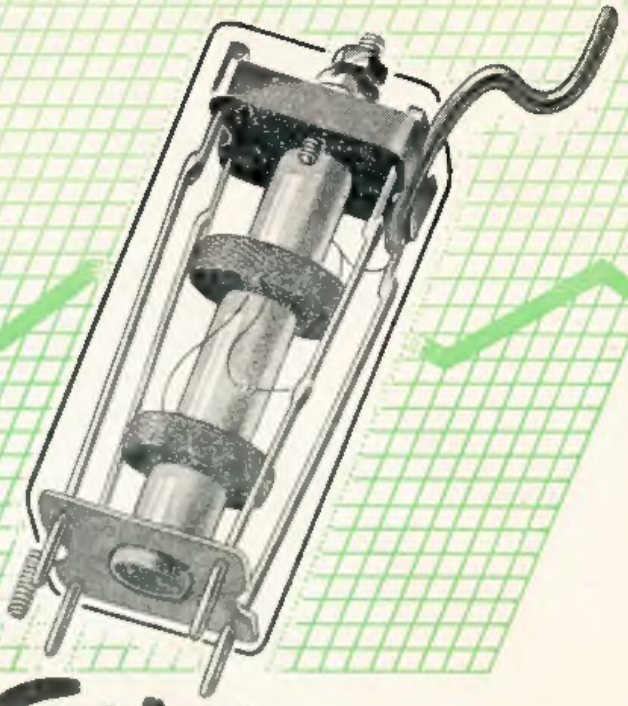

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